RCBS

THE RCBS HANDBOOK OF SHOTSHELL RELOADING

BY KENNETH W. COUGER

A Message From RCBS' General Manager

Hunting is a tradition as old as recorded history. It is a recreation for enjoying nature and provides valuable lessons in individual responsibility and ethics. Hunting also brings us closer with our family and friends when we venture together into the great outdoors. Our favorite pastime helps us to build bonds, share values and build wonderful family traditions.

I have been blessed with many great hunting experiences over my life with family and good friends. But rarely have I found more enjoyment in life than I have in teaching my grandson the art of hunting and shooting. He is my newest hunting buddy no matter where we venture; deer hunting in the mountains, duck hunting in the valley or turkey hunting in the foothills. He is right there tagging along with me. It gives me tremendous pleasure to pass along my favorite hobby to my grandson and it serves our industry well in introducing new participants to the industry we all love. Hunting may be a controversial subject in some circles, but I won't allow that to be the case in my circle of family and friends. As hunters we have the responsibility of insuring our own future. Next time you are at the shooting range or gun club take a look around and acknowledge the age of most participants. It is easy to see that if we are to insure a hunting and shooting heritage for future generations to come, we must individually and collectively encourage more young people to become involved in the sport that we love. This challenge lies squarely with you and me. Now is the time for all of us to take it upon ourselves and share our passion for shooting and hunting with the next generation. Together we can enjoy and benefit from this great heritage, while at the same time helping to preserve it for our grandchildren and generations beyond.

Allan Jernigan
General Manager, RCBS Operation

Customer service

Do you have any questions about how to use or operate an RCBS product? Looking for information about reloading? Need a replacement part for an RCBS product?

Don't hesitate to get in touch with the RCBS Technical Service Department. We are dedicated to giving the best service in the reloading industry. Our catalog is located on the web. Please contact us.

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Ordering Information

When requesting replacement parts, please give us the name of the product the replacement part is for, the part number (if known) and name of the replacement part.

Replacement parts are usually shipped by the next working day via first class mail (large items by UPS Ground Service).

Please be sure to give us your name, address and phone number. We'll only call if we have a question about your order.

THE RCBS HANDBOOK OF SHOTSHELL RELOADING

About the Author: Ken Couger is a long–time, accomplished handloader. One of Ken's many hobbies is reloading shotshells—for sporting clays, skeet, trap and sporting loads. For nearly forty years, Ken Couger was a salesperson in the shooting sports industry. During that time he conducted over five hundred reloading seminars at retail dealer's stores across the southwest. Ken, his wife Patti and animal friends Ned and Dreamer are retired and live in the Texas Hill Country. The first edition of *The Handbook of Shotshell Reloading*, was written and produced by Ken in 1984.

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Front Cover: A father and son demonstrate that reloading is a rewarding hobby enjoyed by all generations. In the background is a typical assortment of reloading components and supplies that handloaders keep close at hand.

Back Cover: ATK "Ammunition & Related Products Collection of Brands Chart"

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IMPORTANT INFORMATION PLEASE READ

HANDLOADERS: Post the "Ten Commandments of Reloading" chart in your reloading area.

FOREIGN (IMPORTED) AMMUNITION: Many new brands of foreign manufactured shotshell ammunition have been introduced to the US market in recent years. Some brands are so new they haven't been reviewed in major outdoor magazines. At the present time, reloading data is not available from the major powder manufacturers for these hulls. Handloaders are encouraged to write to the importer or distributor for information regarding reloadability and/or reloading data for the hull(s) in question.

DOMESTIC AMMUNITION CHANGES: There have been many recent changes in shotshell hull design specifications by domestic manufacturers. Some brands have one name on the product but have been produced by other manufacturers (Private Branded). Positive identification is essential. Please follow the instructions regarding "Hull Identification" at the beginning of Chapter 9. HULLS THAT CANNOT BE POSITIVELY IDENTIFIED SHOULD NOT BE RELOADED. WRITE TO THE MANUFACTURER AND REQUEST ADDITIONAL IDENTIFYING INFORMATION AND/OR RELOADING DATA INFORMATION.

⚠ WARNING—RELOADING & FIREARMS

The practice of handloading and the use of reloaded ammunition can be hazardous. Handloading should be done only by competent persons in strict compliance with instructions and data contained in current manuals available from manufacturers of reloading equipment, components and smokeless powder. Failure to comply with these data and instructions may result in incorrectly reloaded ammunition which can cause serious injury or death to the handloader, shooter and/or or bystanders. This book, "The Handbook of Shotshell Reloading," is offered as an aid to handloaders to be used at their own risk. To minimize this risk, read this handbook thoroughly before reloading and shooting and follow the safety precautions and instructions contained herein.

All loading data (recipes) and related information in this handbook are based on results obtained in the Alliant, Hodgdon, IMR and Winchester ballistics laboratories using their information and data as listed. This data information can be used by handloaders at their own risk while observing safe-reloading practices at all times.

Since Alliant Techsystems Inc., its officers, employees and agents, or Kenneth W. Couger have no control over the manufacturing of reloading equipment, components and smokeless propellants, the choice and condition of equipment, components and smokeless propellants, the circumstances under which the equipment, components and smokeless propellants are used and assembled, the firearms in which resulting ammunition is used, and results obtained through its use, no warranties are expressed or implied for any errors and/or omissions in data and information. We specifically disclaim any and all warranties of fitness for a particular purpose, and any and all liability for consequential damages of any kind whatsoever. It is the reloader's responsibility to acquire and fully comprehend basic reloading information and skills prior to attempting to duplicate loads in this manual or those listed on labels and other publications. Failure to do so may result in serious personal injury and/or death to the individual or bystanders.

Reloaded and factory ammunition must be used only in firearms having modern steel barrels originally chambered for the gauge and length of shell specified on the barrel. The use of shells longer than the chamber can cause the barrel to burst and possibly other firearm damage, causing serious injury to the individual or bystanders. It is dangerous to use any firearm except one that functions properly, is in good condition and is designed for use with smokeless powder. If any doubt exists, check with the manufacturer.

Shotshells that have been reloaded using data in this manual must not be fired in Damascus or twisted steel barreled shotguns due to their weak construction and possible deteriorated condition. Barrel rupture may result in injury or death to the shooter and/or bystanders.

Safety Precautions for Shooters Using Reloaded Ammunition

- **Reloaded and factory ammunition must be used only in firearms having modern steel barrels originally chambered for the gauge and length of shell specified on the barrel. The use of shells longer than the chamber can cause the barrel to burst and possibly cause other firearm damage resulting in serious injury or death to the shooter and/or bystanders.**
- **It is dangerous to use any firearm except one that functions properly, is in good condition and is designed for use with smokeless powder. If you have any doubt, check with the firearm manufacturer.**
- **Shotshells that have been reloaded using data in this manual must not be fired in Damascus or twisted steel barreled shotguns due to their weak construction and possible deteriorated condition. Barrel rupture may occur resulting in injury or death to the shooter and/or bystanders.**
- **Before loading any firearm, make sure the barrel is clear and not obstructed in any way. Keep the barrel free of any obstruction, including a smaller gauge shell, which can drop through the chamber and lodge in the barrel. If another shell is fired, a barrel burst may occur resulting in serious injury or death to the shooter and/or bystanders.**
- **If the firearm fails to fire, a mechanically delayed firing may occur or the firearm may fire when opened resulting in serious injury or death to the shooter and/or bystanders. If it fails to fire, keep the firearm pointed in a safe direction, wait 30 seconds, and carefully unload, avoiding exposure to breech.**
- **Wear proper hearing protection, as repeated exposure to gunfire can damage hearing. Wear shooting glasses to protect eyes from flying particles.**
- **Discharging firearms, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to be associated with birth defects, reproductive harm, and other serious physical injury. Do these things only in areas with adequate ventilation such as being outside or have a door and windows open. Wash hands thoroughly after exposure or prior to eating or drinking.**

Table of Contents

Important Information 2
Table Of Contents 3
Foreword 4
Acknowledgments 5
Directory of Manufacturers 6
Directory of Manufacturer's Trademarks 7
Component and Reloading Costs 7
Chapter 1, Why Reload? Why Not! 8
Chapter 2, Reloading Habits and Safety 10
Chapter 3, Choosing the Right Reloading Tool 12
Chapter 4, Reloading basics-Now Let's Start Reloading 18
Chapter 5, How to Select Components
Section 1 - Hulls 24
Section 2 - Primers 36
Section 3 - Powder 42
Section 4 - Wads 47
Section 5 - Shot 50
Section 6 - Crimps 60
Chapter 6, Reloading With Non-Toxic Shot
Section 1 - Steel Shot 66
Section 2 - Bismuth Shot 68
Section 3 - Hevi-Shot 68
Chapter 7, Choosing a Load (Recipe) 70
Double Check List 72
Chapter 8, Introduction to the Loading Data 73
Section 1 - Alliant 74
Section 2 - Hodgdon 82
Section 3 - IMR 82
Section 4 - Winchester 82
Chapter 9, Reloading Data Recipes
Section 1 - Hull Identification Section (Full Color) 83
Section 2 - Reference Notes 103
Section 3 - Reloading Data Recipes 123
Chapter 10, Care, Cleaning and Fun with Your Shotgun
Outers/Gunslick—Gun Care Equipment 334
Champion Target Company—Target Traps & Targets 339
Basic Choke Information—Trulock Chokes 341
Chapter 11, Reference
Cost Charts—How to Figure the Cost of Reloading 346
Ten Commandments of Shotshell Reloading (Detachable Poster) 353
RCBS Bushing Chart (Inside Back Cover) 355

Foreward

Thank you for purchasing *The RCBS Handbook Of Shotshell Reloading*.

This handbook is written for handloaders by handloaders. We believe no other handbook on shotshell reloading offers so much useful information in such great detail.

The RCBS Handbook Of Shotshell Reloading is written to familiarize handloaders and would-be handloaders with present day methods and techniques of reloading shotshells and secondly to provide the most complete and up-to-date advice possible on today's reloading equipment and components. Details of basic instruction and more advanced techniques are found in the pages ahead.

Although shotgun ballistics are no different than they have been for more than two centuries, there have been changes in equipment and components. Many are recent—and more are coming. Within this handbook, the principles are updated and explained in simple language. By not only knowing what happens but why, this information will help the reader to become a more accomplished handloader and shooter.

You are about to embark on a fascinating hobby and we believe that the answers to questions that you have been asking will be answered in this handbook. It is our hope that this handbook will add to your knowledge and enjoyment as you participate in the shotgun sports. Your comments, criticisms and suggestions are always welcome.

Read on, but meanwhile take care that our legislators don't take our guns away from us. We strongly recommend that every reader join **The National Rifle Association of America**, 11250 Waples Mill Road, Fairfax, VA 22030, 877/NRA-2000, and support its efforts to protect the right of the sportsman, collector and home-owner to legally possess and use firearms. The right to bear arms was an important part of our American Heritage and is vital to our individual rights today.

Ken Couger
Vistas Escondidas de Cypress Springs Estates por el río de Guadalupe
West Kerr County, Texas
Fall, 2007

Acknowledgements

We are indebted to many shooting friends and professional people within the reloading industry. This book would not have been possible without their advice, support and contributions.

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Thank you, too, Ben Amonette at Alliant Powder®, Tom Shepherd and Ron Reiber at Hodgdon Powder® and Tim Vaitekunas at Winchester®. We acknowledge the cooperation and gracious consent to reprint reloading data developed by each powder manufacturer, who obviously, is in the best position to prepare information and data for its products.

Thanks to Kyle Tengwall, Raluca Simian, Rochelle Poore, Ron Ives, Melissa Layne and Rick Stoeckel at Federal®, Russell Ellis, Brandon Graves, Ernest Durham, Bernie Ness and Hal Price at CCI/Steer, David Nau, Jackie Gamez and Mary Nohr at Outers®/Gunslick®; Tom Knudtson at Champion™ Targets & Traps; Rick Buckmaster and Scott Hanes at Remington®; Grant Fackler at Ballistic Products®; Garland Sears at Gene Sears Supply; Bryan Rich at West Coast Shot®, Robyn Richardson at Lawrence Brand® Shot; Michael Hampton, Jr. and Julie Moreno NSSA–NSCA and Linda Martin at *Shotgun Sports Magazine* for your contributions of photographs, information and products.

David Van Elgort, at Trapshooters.com shared his clever, on-line, Java fill-in-the-blank chart that computes the cost of reloading shotshells. George Trulock—Trulock Chokes® kindly approved reprinting his excellent article on shotgun chokes. Patterning performance IS directly related to successfully reloading shotshells; that's why this information is included. No matter if the reloaded shotshell is of the finest performance quality, if the shot pattern can't be delivered to the target successfully, shotshell reloads take the blame—"chokes" make the difference.

It is always fun and interesting just to share information with other shotshell handloading experts like: Mike Jordan (Howard Communications, Inc.), a long time friend who retired from his fun job at Winchester® and now has a real job. Bryan Rich (West Coast Shot®) has probably forgotten more about manufacturing shot than I ever knew. Dave Kern (MEC® Reloaders) and Dicksie Spolar (Spolar Reloaders®) are legends in the manufacturing of shotshell reloaders—THANKS friends, for all the information and support you've shared over the years. Let me not overlook new Texas Hill Country friends Mike Cook, handloading expert and sporting clays shooter extraordinaire and Bill Thomas, expert and instructor of all that shoots. Last and certainly not least, THANKS to my plentiful other friends, for your expertise and support, shared over the many years--you know who you are.

Very special thanks to Jeff Frederick and his staff at Frederick Design who make this book beautiful and managed it under deadlines that only true professionals could meet.

The following page contains names, addresses and contact information of companies that contributed information, products, materials and support that made this handbook possible.

Ken Couger

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Ballistic Products, Inc.
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www.ballisticproducts.com
Attn: Customer Service

Bismuth Cartridge Company
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http://www.bismuth-notox.com/
Attn: Customer Service

CCI/SPEER Operations
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Onalaska, WI 54650
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Fiocchi Ammunition USA
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Kitco, Inc.
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National Sporting Clays Association
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Shotgun Sports Magazine
P.O. Box 6810
Auburn, CA 95604
530/889-2220
www.shotgunsportsmagazine.com/
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Trapshooters.com
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www.winchester.com
Attn: Mr. Tim Vaitekunas

Directory of Manufacturer's Copyrights/Trademarks

Throughout this book, trademarked names are used. Rather than put a trademark symbol after every occurrence of a trademarked name in this book we have provided the below list of trademarks under their current owners. We use trademarked names in an editorial fashion only, and to the benefit of the trademark owner, with no intention of infringement of the trademark.

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Ballistic Products®, TPS™ (Tungsten Propulsion Systems), Multi-Metal™, BP12™, BP12-Tuff™, Ranger™, Turkey Ranger™, Ballistic Pattern Driver™, GS2 Air Wedge™, X12X gas seal™, BPGS Gas Seal™

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Browning Arms Co, Inc.
Browning®

E. I. du Pont de Nemours & Co., Inc.
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Hevi•Shot®

Federal Cartridge Ammunition
American Eagle®, Ballisticlean®, Champion®, Classic®, Federal®, Gold Medal®, Hi-Power®, Premium®

General Electric
Lexan®

Fiocchi
Fiocchi®

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Remington Arms Company, Inc.
Blue Magic™, Express®, Kleanbore™, Nitro 27®, Nitro Magnum™, Power Piston®, Premier®, Remington®, RXP™, ShurShot®, SP™, SPS™, STS™

Trapshooters.com
Reloading Cost Calculators

WHAM-O, Inc.
Frisbee®

Winchester Division/Olin Corporation
AA®, AA Plus™, Double A®, Lubaloy®, Mark V®, Olin®, Super-X®, Upland®, Western®, Winchester®

About Component and Reloaded Costs Discussed in this Handbook

Costs of factory loaded shotshell ammunition and reloading components are relative to 2007 when this handbook was printed. It's VERY interesting that the 2007 cost of shotshell component primers are extremely close to the prices of 20+ years ago. Example: In 1984, when The Handbook of Shotshell Reloading was first printed, a case of 5,000 Federal 209 shotshell primers was $125.00 Suggested Retail. In early 2007, the price of the same 5,000 primers can be found for approximately 149^{99}. Lead is at the other extreme—more than doubling. A bag of "chilled" shot in 1984, was approximately $8.50/bag. Now, handloaders buy a ton at a time to get the price down to maybe $35.00/bag. Lead is a commodity and subject to the demands of a global market. In 1984, a box of 25 12 ga. "target grade" loads was approximately $5.55/box. Today, similar boxes of premium target grade loads can be found for around $6.50/box.

How is all of this possible? Go figure… In 1984, shotshell reloading was VERY popular. Today, the consensus is that shotshell reloading is not as popular as 1984 because the price of factory loaded shotshell ammunition is less expensive than the components required for reloading. We'll explore (figure) that belief in the pages ahead. There ARE surprises and more surprises will be realized throughout the years ahead.

Throughout this handbook, a "model" reloading recipe will be used in several examples. The recipe is for a popular "target" load that could be used for sporting clays, trap, skeet or game loads:

- Hull: 12 ga. 2-3/4" Federal Gold Medal
- Powder: 17.5 grains, Alliant Red Dot
- Primer: CCI 209M
- Wad: Federal 12S3
- Shot: 1-1/8 oz.

CHAPTER 1

Why Reload?—Why Not!

Why Reload Your Own Shotshells?

For folks who love shotgunning, shotshell reloading is a rewarding hobby. Perhaps the greatest argument for reloading is to save money. Savings can be up to 50% or more compared to cost of factory ammunition —a substantial amount indeed! This is incentive enough for many people to start reloading. For most people reloading also is just plain fun. The satisfaction of breaking a clay target, downing a game bird, or scoring a hit on small game with a shell that you "rolled your own" is a rewarding accomplishment. Here are some thoughts to consider.

- **Handloaders Have Fun Reloading**
  Handloaders reload—they stay in close touch with shotgun shooting sports, even during the off-season. Reloading shotshells is an enjoyable leisure time activity, which increases shooting ability and knowledge.
- **Reloading Saves Money**
  Handloaders save up to 50% or more compared to the cost of factory loaded ammunition—particularly the small gauges: 28 and .410 bore. Therefore, handloaders can shoot twice as much for the cost of loaded ammo or the same amount for half the cost.
- **Help the Environment**
  Reloading requires you to pick-up and save empty hulls preventing litter in the field or on the range. Recycling your hulls saves you money because, the case or hull is often the most expensive part of a loaded round.
- **Improve Ballistic Performance**
  By careful experimentation within given loads, hand loaders can improve their target shooting or hunting performance. Reloading makes it easy to fine-tune shells to a certain shotgun and purpose, and to a certain type of shooting.
- **Become a Better Shooter**
  Through reloading, a shotgunner will develop a much keener knowledge of shooting technology and be able to tailor your ammo to a particular firearm. Additionally, handloaders shoot more for less, and after all, practice makes perfect!

Usually, though, the irresistible reason for reloading is the desire of people to do things their own way and to be independent of the limitations of factory-loaded ammunition.

You probably have some questions, or you wouldn't be reading this handbook, so let's get the easy ones answered first.

The Six so-called Mysteries of Shotshell Reloading Unveiled.

A lot has been written about shotshell reloading, but to many, it is still a subject of mystery.

There seem to be six common questions that nearly every beginning reloader has on his or her mind. We'd like to answer these questions first, and then get on with a step-by-step description of how it's done.

When you finish, you'll understand how simple reloading is and why more than 4 million gun owners are hooked on this exciting hobby.

Mystery #1: *How Safe is Reloading?*

Very.

Today's smokeless gun powders are a lot different from the old black powders of our ancestors. In fact, modern smokeless powders are classified as combustible propellants, not explosives, which means that when properly used, these powders burn only when ignited.

Mystery #2: *How Good is Reloaded Ammo?*

The truth is, carefully reloaded shells are usually better than factory loaded, because they can be custom-tailored for a particular shotgun.

Each shotgun shoots a little differently than the next, even two guns of the same gauge, choke, style and make. Reloading makes it easy to fine-tune shells to a certain shotgun and purpose, and to a certain type of shooting. You can learn to do this within a very short time.

Mystery #3: *How Complicated is Reloading?*

It's downright simple.

Reloading is simply replacing those parts of a shotshell that are used up when the shell is fired. There are five major components to a shotgun shell: The primer, the plastic case or hull, the powder, the plastic wad and the shot. When the shell is fired, the primer ignites the powder, which then propels the wad, shot and itself out the barrel. The hull and the spent primer are all that's left.

Most hulls can be reloaded several times. You just push out the fired primer, insert a new one, add the required amount of powder, seat a plastic wad, and drop a charge of shot and crimp. (We'll show you more details on the following pages.)

Besides not being complicated, any reloader will be quick to tell you it's just plain fun. For some, this is the best reason of all to "roll your own" ammo. It makes the whole experience of shotgun ownership twice as much fun, and twice as rewarding.

Mystery #4: *How Much Money does Reloading Save?*

That all depends. The more you shoot, the more you save.

For instance (at 2007 prices), 12 gauge lead high-velocity Premium Magnum Turkey 10–pak loads cost upwards of $1.15 each ($11.48/10–pak) off the shelf. Of that, the primer, powder, wad and shot account for less than 27 cents, so the hull accounts for the remaining 88 cents of the total cost (based on cost of comparable component).

When you reload that hull, you save at least 64 cents each time. This is more than $8.80 per box of 10 at average discount store prices. This helps explain why most reloaders consistently outscore non-reloaders in target shooting and hunting. They not only have custom-tailored ammo, but they also can afford to practice more.

The above cost comparison of Premium Magnum Turkey loads in a factory 10-pak vs. the reloaded cost to replace the same components as closely as possible with premium grade components. Now, granted this is a load that select sportsmen use so let's compare some high volume loads used by skeet shooters. The following table shows averages of factory premium grade skeet loads vs. reloading the same hull with premium grade components. The 2007 prices also reflect buying volume amounts of components and factory loads by case lots. The prices are an average of five different sources for the best price in each gauge of factory loads and components. We'll discuss, in more detail, cost considerations in later chapters.

	Factory Price	Price Reloaded	Percent Savings
12 Gauge	$5.30	$3.72	29.81%
20 Gauge	$5.20	$3.13	39.81%
28 Gauge	$8.20	$2.81	65.73%
.410 Bore	$8.20	$2.32	71.71%

you can buy a reloading press and all the components it takes to reload five flats of shotshells for less than the cost of the five flats of factory-loaded shells.

Now admittedly, you need some equipment to get into reloading, but, as we are about to reveal, the equipment pays for itself rather quickly.

Mystery #5: *How Much Equipment does it Take?*

Surprisingly little.

Many beginners estimate it will cost several hundred dollars to get into reloading properly. Generally, you can buy a reloading press and all the components it takes to reload five flats of shotshells for less than the cost of the five flats of factory-loaded shells. With proper care, the press will last for several years and reload thousands of shells.

Mystery #6: *How Many Kinds of Shells can be Reloaded?*

You can reload just about any gauge and brand of shell, providing it is in good condition.

The brand and quality of the fired hull and the powder charge will determine the number of times the hull can be reloaded. Handloaders will recognize early on that quality hulls are the least expensive in the long run and will give them the greatest satisfaction during their reloading experience.

These are the facts about that very "mysterious" thing called reloading. It is a very simple and very rewarding hobby that can double the fun of owning a shotgun.

CHAPTER 2

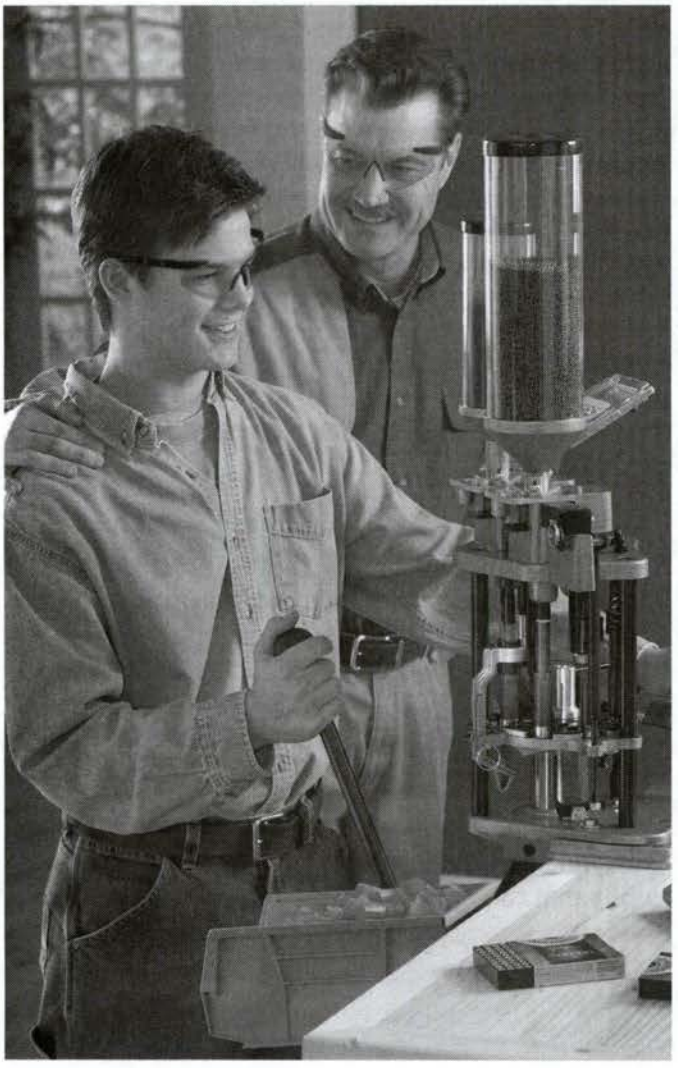
Reloading Habits and Safety

All it takes to make shotshell reloading safe is common sense and the ability to read and follow the directions of component and reloading equipment manufacturers. Considering the number of handloaders and the great quantity of ammunition reloaded and fired the safety record of reloading is excellent.

Throughout this handbook, instructions for using reloading components and equipment have been developed and extensively tested in research laboratories of powder manufacturers. ***No one knows more about their particular powder products than the powder manufacturers themselves.***

No one knows more about their particular powder products than the powder manufacturers themselves.

When a manufacturer instructs handloaders to use a particular set of components (recipe) in a shell, it means precisely that. In shotshell reloading, you cannot indiscriminately experiment with or substitute components without experiencing problems. At best, you will get a shell that fails to give the performance you expect. At worst, you may inflict serious injury upon yourself, a bystander, or someone else who fires your reloaded shells. The recipes in the "Data Section" of this book were developed by the powder manufacturers. **Always follow these recipes exactly!** Just as Grandma taught Mom the first commandment of baking—"If you want chocolate cake, you've gotta follow the chocolate cake recipe"; handloaders have to heed the same advice.



Getting started—While reloading is a very enjoyable and rewarding hobby, handloaders will get their best results when they give it their undivided attention. Good organization and work habits will pay handsome dividends in the efficiency and performance of your reloads.

Whether you work in your garage, on the kitchen table or on the coffee table in the den (until you spill shot on the carpet!), good lighting, neatness and functional arrangement of your reloading press and components will reduce the probability of error.

Privacy—You will work much better if you eliminate distractions while you are reloading. We mention this because it is important to do your reloading in an atmosphere where you can concentrate on "rolling your own" in safety.

Personal safety—DO NOT reload without wearing safety glasses.

Reloading is an enjoyable and rewarding hobby that can be conducted easily and safely. By following the rules on the next page and on page 2 of this handbook, the chance of problems will be extremely remote.

The Ten Commandments of Shotshell Reloading

1. Exercise care and common sense at all times and always wear eye protection. It is an unnecessary risk to reload without safety glasses.
2. Do not reload without an instruction manual for the machine you are using whether it be a *RCBS* or any other brand and not before you have completely read and understood the instruction manual. *(In almost all cases these instruction manuals are free.)* Do not take shortcuts. Use your reloading press according to its instruction manual.
3. Reload only when you can give it your undivided attention. Develop a reloading routine to avoid mistakes. Don't become distracted, avoid haste and reload at a leisurely pace.
4. Carefully examine each empty shotshell hull. Do not reload hulls that are defective or excessively worn.
5. Observe "good housekeeping" in your reloading area. Keep your equipment and components in a neat, clean and orderly fashion.
6. Observe and heed all warnings in the *"Introduction"* section to the reloading data in Chapter 8.
7. Double check. Take a second look at your chosen recipe in the *"Data Section"* and be sure you are using the proper components in the proper amount. Do not substitute components and never exceed recommended loads. Check the "dropped" powder charge with a powder scale to be sure it conforms to the chosen recipe and "check-weigh" dropped charges frequently.
8. Keep only the powder and primers you are using handy. Keep no more than needed in an open container. When not actually using powder or primers, store them out of the way in their original factory containers. Do not repackage powder or primers. This will preserve identity and shelf life. Only use powder and primers of a known identity. Scrap those of uncertain or unknown identity.
9. Store powder and primers beyond the reach of children and away from heat and open flames in accordance with SAAMI recommendations pages 39-41. Do not store primers in bulk! Do not force primers! Take care in filling automatic primer feeds. Do not smoke when reloading. Keep a fire extinguisher within reach of your reloading bench.
10. Keep complete records of your reloads. Apply a descriptive label to each box of shells. Then, when you find a reload that performs well, you'll have the recipe at hand.

SAFETY PRECAUTIONS IN HANDBOOK

Throughout this handbook, handloader's will see Safety messages as defined by the American National Standards Institute (ANSI). ALL handloaders MUST read and understand the entire contents of this handbook prior to reloading and follow the WARNINGS and CAUTIONS when reloading.

WARNING— Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION— Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.

To summarize the commandments above, **Know Your Data** and do not rely on memory or guesstimates. Safety in reloading, as in most human endeavors, depends on the person involved and can be simple and fun. Details of basic instruction and more advanced techniques are found in the following pages. Our purpose in writing this handbook is to provide a foundation beginning with the basics. You're going to start in the first grade, and we'll take you through the whole course. There are advanced techniques and detailed instruction available for specialty reloads. This is not within the scope of this handbook but names, addresses and contact information will be given as appropriate.

We believe that reloading will offer you both enjoyment and the rewarding experience that was ours when we started so many years ago. Welcome to the great fraternity of handloaders throughout the nation and world.

CHAPTER 3

Choosing the Right Reloading Tool

There are three basic types of reloading tools: manual, semi-automatic single stage, and semi-automatic progressive. The type you choose will be governed by three considerations: The money you have to spend; the convenience you want; and the volume at which you want to reload.

If low price is your overriding consideration, you can "make do" with a manual reloading kit. This kit is available in almost any gauge for less than $20, and it produces acceptable reloaded shotshells. Davy Crockett would have loved owning one! At that price, you can't afford not to reload. However, with a manual reloader, you are giving up convenience, speed, and (depending on how careful you are) accuracy and uniformity as well.

Just as a good shotgun fits your body proportions and style of shooting, your reloading system should fit your needs.

⚠ WARNING—With a manual reloader, you must carefully and accurately hand-measure and pour the exact amount of powder and shot. Too much of either can produce a reload that not only fails to perform as expected, but also can be dangerous to the shooter and bystanders.

The choice of equipment is a matter of personal preference and price. We recommend *RCBS* reloading presses. These are semi-automatic tools, and will cost a little more. What will you get for the extra expense? Convenience, simple operation, greater volume and more uniform performance.

Every *RCBS* tool will reload shotshells with great precision and a minimum of effort. Whether you're a sometime shooter or own a shooting range, *RCBS* has a reloading system in a range to fit your budget and needs. Some systems are simple but let you upgrade and add accessories whenever you want. Some are for high production with optional hydraulic power. They can operate all day and load shells like a factory. Just as a good shotgun fits your body proportions and style of shooting, your reloading system should fit your needs. That's why *RCBS* has a choice of models.

You need some basic equipment before you start reloading. You've taken the first step by purchasing this handbook. You should thoroughly read, and understand, each chapter before you invest in any equipment and components. This will help you make intelligent decisions when you shop for your equipment and components.

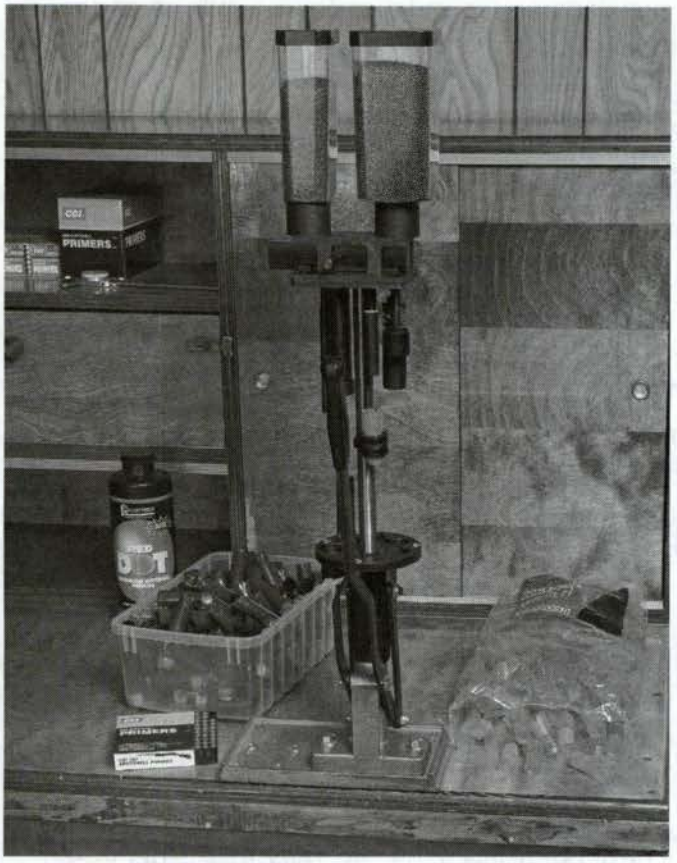
Your first decision will be about a reloading press that fits your needs and requirements. Your local, independent sporting goods retailer will be able to demonstrate the *RCBS* reloading presses discussed in this handbook. Dealers are also a good source of information for equipment, components, accessories, parts, upgrade kits and service. Some of the sales people are probably reloaders. They can give you advice and suggestions based on their own experiences and from dealing with other local reloaders.

A typical semi-automatic reloading press performs all the basic reloading steps automatically when the handle is pulled—depriming, resizing the metal base, repriming, measuring the correct amount of powder, firmly seating the wad column, dropping a desired amount of shot, and forming a tight crimp.

As mentioned earlier, there are two basic types of semi-automatic reloading presses—single stage and progressive.

With a single-stage press, you manually move the hull from one station to the next as you go through the reloading cycle. There are seven stations on the *RCBS Mini Grand* reloader. Each hull is processed singly and finished before a new one starts through the cycle. The single-stage reloader is usually the best choice for the hunter and occasional clay bird shooter who doesn't require high volume and maximum speed. Six to eight boxes of reloads per hour are not unusual with a *Mini Grand*.

The RCBS Mini Grand



The *RCBS Mini Grand* seven-station single stage shotshell press is optimum for use by part-time target shooters and hunters. The *Mini Grand* will reload lead or steel shot (with the optional steel shot conversion kit) and hulls up to 3-1/2". Reloading rate is approximately 200 rounds per hour. The *Mini Grand* uses the same powder and shot bushings as *The Grand* progressive shotshell reloader. Powder and shot bushing can be changed in about one minute. Powder capacity is one-half pound of a chosen smokeless powder. Shot capacity is 12-1/2 pounds.

Features & Benefits

- **The frame is constructed of steel and a high grade aluminum base casting and features the famous *RCBS* Compound Leverage System**
- **There is a large working window for greater visibility**
- **With the independent wad guide system, the wad can be placed in the Wad Guide at any time in the operation**
- **Non-spring loaded handle**
- **Quick change *RCBS* or Hornady powder and shot bushings**
- **Easy hull positioning with the *RCBS* unique shell holder design**
- **Six and eight point crimp starters are included**
- **The seventh station is for an optional Taper Crimp die for reliable feeding in auto loading and pump shotguns**
- **An optional conversion kit for reloading steel shot is available**
- **One half-pound smokeless powder capacity**
- **12-1/2 pound shot capacity**
- ***RCBS* Lifetime Warranty**

The Grand

Features & Benefits

- **The massive frame is constructed of high-grade aluminum casting that's tied together with steel rods and links. The 1-1/2" diameter ram is joined to the famous *RCBS* Compound Leverage System for a smooth, solid, effortless feel. The large openings in the frame give easy access to all of the eight stations.**
- **Universal Case Holders for easy removal or insertion of hulls at all stations and allows sizing of the metal portion of the hull down to the rim.**
- **The Auto Indexing System is very simple, yet very reliable. It's easily removable for those who prefer manual indexing—pull the pin and the unit slips out in one piece!**

- **A Steel Sizer Ring provides complete resizing of high and low base hulls— a feature not found on most other progressive shotshell reloading presses.**
- **The Tilt-Out Wad Guide is spring-loaded for easy, convenient feeding of wads. The Wad Guide is designed for use with Federal or your favorite brand of wads.**
- **The Priming System feeds one primer at a time and is extremely reliable: no double-stacked primers, no overturned primers and no skipped primers.**
- **The Powder System is no hull, no powder dropped and therefore no spillage. The powder system also provides three positions for the Powder Measure—"On", "OFF", and "EMPTY".**
- **The Shot System is case activated, which means no hull, no shot and best of all, no spillage.**
- **The Shot Hopper has a capacity of one bag of shot—25 pounds!**
- **Conversion Kits are available for changing to 12 gauge or 20 gauge as required. These kits make the changeover relatively easy and quick. Everything a handloader needs to make the changeover is included.**
- **An optional "Riser Stand" kit is available to raise the base of The Grand by four inches. This kit optimizes the height of the workbench to fit the handloader's ease and comfort of reloading shotshells.**
- **A Hydraulic System Kit is available for *The Grand* from RCBS direct. This compact unit connects to The Grand, provides hydraulic power and operates on 110 household current. The hydraulic system never gets tired, and the handloader controls it with foot pedals. Hands are free to add empty hulls and wads. A 25-round box of 2-3/4" hulls can be reloaded in less than two minutes. If you want the best—*The Grand*, with hydraulic power, is it!**

The Grand is intended for the shotgunner who requires accurate, precision reloaded shotshells for sporting clays, trap, skeet or hunting. The handloader merely has to start a hull at Station 1 and insert a wad in the Wad Guide at Station 4. All other functions are performed automatically by *The Grand*. Once in full operation, a reloaded shotshell is dispensed each time the handle is cycled through the full down and up strokes.

A handloader, using The Grand progressive tool, can easily crank out two flats of ammo (20 boxes) per hour.

The case activated Powder System means no hull, no powder dropped and therefore no spillage, and there is no need to manually turn the powder on and off. This is one of the finest features of *The Grand*. The handloader can load single hulls or fill the carousel's eight station shell holders all the way up. The machine "knows" when a station is empty and won't drop powder or shot on an empty station. Because the powder changing station is at the front of the press, it is easy to view the powder charge and convenient to remove the powder-charged hull for check weighing the powder charge when deemed necessary.

The Powder System provides three positions for the Powder Measure: "ON", "OFF", and "EMPTY". To completely empty the powder hopper, attach the drain tube and turn the powder measure to "EMPTY". The powder will then drop back into the powder can at the bottom of the drain tube. The Powder Bushings easily interchange in about 30 seconds and are available for all popular loads. Hornady brand Powder Bushings may also be used in *The Grand* charge bar.

The capacity of the Powder Hopper is one pound of a chosen smokeless powder. The capacity of the Shot Hopper is 25 pounds—a full bag.

The Shot System is also case activated. Again, no hull, no shot and best of all, no spillage. The handloader never needs to continually turn the shot measure "ON" or "OFF". The shot system is easily drained. Merely attach the drain tube below the shot measure. Then, shift the Shot Measure to "EMPTY" and the shot falls back into the shot bag or container. It's that quick and simple, plus no lead shot on the floor.

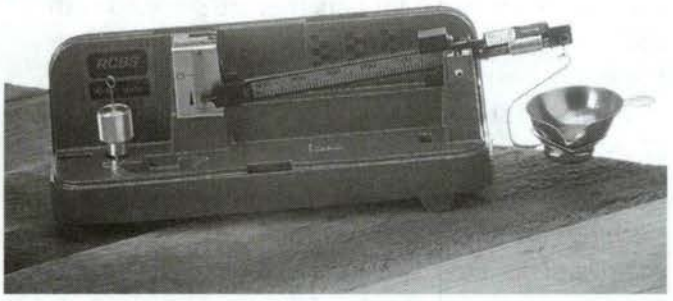
With a progressive reloader such as *The Grand*, eight shells are processed through the several reloading steps simultaneously, completing a finished reload with each pull of the handle. Sporting Clays, skeet and trap enthusiasts may shoot up eight or more boxes of shells in one afternoon on the range, and these target shooters generally prefer progressive models to reload a high volume of shells fast. A handloader, using *The Grand* progressive tool, can easily crank out two flats of ammo (20 boxes) per hour.

After you have chosen the *RCBS* press that best fits your needs and requirements, there are a few other choices and considerations to make.

The Handbook of Shotshell Reloading— FEATURING *RCBS* RELOADING PRESSES—This one! You've got it.

Powder Scale—A reloader needs a powder scale to check and verify the accuracy of the shot and powder bushings. We personally prefer the *RCBS Model 10-10*. Normal capacity of this scale is 510 grains. This can be increased, without loss of sensitivity, to *1010* grains by attaching the included extra weight. Some features include: Micrometer poise for quick, precise weighing; special approach-to-weight indicator; easy to read graduations; magnetic dampener; agate bearings; anti-tip pan; and a dust proof storage lid that snaps on to cover the scale.

RCBS Model 10-10 Scale



There is an easily read chart on the front of the scale housing that gives ounce-to-grain conversions from 1/2 to 2 1/2 ounces. This is especially helpful to those of us who can only remember that there are 437.5 grains per ounce and 7,000 grains per pound. Since the conversion amounts are right there in front of us, we don't have to go back into the house to get our trusty calculator... You see, some of us have been banished to the workshop, forever, for spilling shot on the carpet. Every time the bride passes the vacuum cleaner over "that" spot a few pellets make it halfway up the tube and rattle. Can you imagine half a bag of #9 shot spilled on carpet? Well, we missed the touch-down run and were trying to catch it on instant replay... Most of the problems we've had, in our years of reloading experiences, we've created ourselves. Remember, a few pages back we discussed eliminating distractions and concentrating on our work at hand. We're human—but, if we give reloading our undivided attention, we'll eliminate these types of problems.

RCBS ChargeMaster 1500 Scale

This is the optimum scale available for handloader's needs. The new *ChargeMaster 1500* Scale is built from the ground up as THE high-performance reloading scale. The large LCD display is easy to read in grains or grams and weighs precisely to +/- 0.1 grain. With a 1,500 grain capacity handloaders can precisely weigh powder, shot, hulls or loaded shotshells.

The scale is fast and easy to calibrate with the two-calibration/check weights that are included. An AC power adapter is included. The *ChargeMaster 1500*

RCBS ChargeMaster 1500 Scale

Scale was designed for the serious shooter that wants the best high tech scale on the market. The 1500 Scale can be operated as an independent electronic scale or it can be upgraded to an automated powder dispensing system with the addition of the ChargeMaster Dispenser (shown below).

The features of the *RCBS ChargeMaster System* (coupled with the *ChargeMaster Dispenser*) offer hand-loaders valuable benefits when weighing powder for non-toxic loads. Steel, Bismuth or HeviShot charges can also be weighed precisely weighed on the *1500 Scale*. Accurate weighing of powder and shot are accepted procedures when reloading non-toxic loads.

RCBS ChargeMaster Dispenser

RCBS ChargeMaster Dispenser

RCBS ChargeMaster Dispenser Combo

The *ChargeMaster 1500 Scale* and *ChargeMaster Dispenser* together in combo form an unmatched

combination of speed and accuracy. There is no longer a need for timely calibration to the type of powder being used. Simply fill the one-pound plus capacity powder hopper with smokeless powder, enter the desired charge and press the dispense button. Average dispensing time is approximately 30 seconds, or less, for a 60-grain powder charge of all extruded (stick), ball (spherical) and flake smokeless powder. Handloaders can store up to 30 of their favorite loads in memory for fast easy recall. The front to back layout allows easy access to the scale pan by right or left-handed users. The clear cover eliminates fluctuations in weighing caused by air currents without obscuring the view of the charge being dispensed. Power to the Dispenser is provided by the connection to the ChargeMaster 1500 Scale so there is only one power cord to manage. The *ChargeMaster 1500 Scale and Dispenser* can be purchased separately or as a Combo Set. (Note: Use with smokeless powder only. DO NOT use with black powder!)

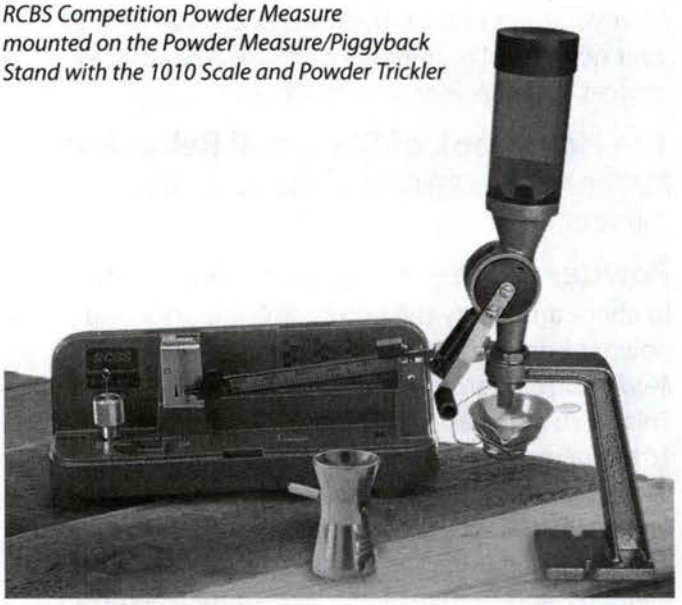
Some shotshell handloaders prefer to drop powder with a hand-operated powder measure. *RCBS* has a precision measure for doing just that. The *Competition Powder Measure* starts with the proven *RCBS Uniflow Powder Measure* with its precision ground metering drum and honed main casting. *RCBS* then adds a powder baffle and *UPM Micrometer Adjustment Screw.* The *Powder Baffle* controls the powder flow and the pressure of the powder column on the metering unit. The *UPM Micrometer Adjustment Screw* allows precise adjustment to the metered charge as well as allowing the handloader to record the number for future reference and reuse. Handle placement can be used on the right of left side simply by changing the orientation of the metering drum.

All powder and shot "drops" must occasionally be checked and verified

With the *Competition Powder Measure* mounted on the *RCBS Powder Measure/Piggyback Stand,* accurate powder drops of ball, flake or cylindrical (stick) powder into a scale pan are then verified by either the *RCBS 1010 Scale* or *ChargeMaster 1500 Scale*. The metered charge then can be "topped off" using a *RCBS* Powder Trickler (all pictured at the top of the next column with the 1010 scale).

For most handloaders, only a scale like the *RCBS 1010* or *1500 ChargeMaster* is required. *RCBS* powder and shot bushings are extremely accurate. However, experienced handloaders know, and accept, that ALL powder and shot "drops" must occasionally be checked and verified during the reloading process.

RCBS Competition Powder Measure mounted on the Powder Measure/Piggyback Stand with the 1010 Scale and Powder Trickler



Bars and Bushings

A complete assortment of "quick change" charging bushings is available for bars that are shipped with the *Mini Grand* and *The Grand* reloaders. Please see the inside back cover of this handbook for the *RCBS* powder and shot bushing chart.

There are two holes in *RCBS* bars. Each is precisely bored to accept powder or shot bushings. *RCBS* powder bushings are identified by numbers that correspond to the size of their inside diameter. Example: The inside diameter of the #456 powder bushing is 0.456 inches.

Shot bushings are stamped with the amount of shot, in ounces, that is dropped. There is a separate grouping of shot bushings for the competitive target shooter. Due to the increased amount of antimony in target grade "magnum" shot, density of the lead/antimony content is lowered. To insure that the precise amount of magnum shot, in ounces, is dropped in target loads, bushings calibrated to measure maximum legal loads for sporting clays, skeet and trap shooting should be used.

See the following picture for information stamped on the side of a typical powder and shot bushing. Both powder and shot bushings are designed with different outside diameters. This prevents accidentally reversing the shot or powder bushing in the charge bar.

RCBS Shot and Powder Bushing

CAUTION—*RCBS* strongly suggests the use of a scale to check and confirm the charge and aid in selecting the appropriate bushing for those lots of powder manufactured to the high or low side of the tolerance.

RCBS makes the following statement concerning volumetric measuring of powder on the bushing chart.

"All charges listed on this chart are an average of several loads weighed following the complete reloading cycle. Powders used in establishing these loads were from ballistic samples supplied to *RCBS* by the powder manufacturer in sealed tins of recent manufacture. Charges may vary slightly due to operator's technique and/or powder variables. Always check an actual charge weight against recommended charges and adjust bushing size as necessary."

Powder charges may vary slightly from the weights listed for many reasons: density and moisture content, undue agitation and inconsistent manipulation of the charge bar are just some of the factors.

Powder is manufactured to an approximate tolerance of .025 grams per cubic centimeter, which translates to approximately plus or minus 5%. This is generally accepted by shotshell reloaders. *RCBS* powder bushings are identified by numbers that correspond to the size of their inside diameter. Example: The inside diameter of the #456 bushing is 0.456 inches. Once again, please refer the *RCBS Bushing Chart* inside the back cover of this handbook for detailed information on both powder and shot bushings.

Every reloading tool manufacturer and/or distributor offers optional accessories to their products. These range from taper crimpers, riser stands, hydraulic unit kits, powder baffles, wad hoppers, shot containers, shell boxes and labels, specialty components, once-fired and new hulls, shot buffer, specialty instruction booklets, etc. Other than *RCBS*, one such company is *Ballistic Products, Inc.*, in Corcoran, MN. "BPI" was established in 1974 by Mr. Dave Fackler. Sons Kurt and Grant grew up in the family business and now manage the day-to-day operations.

BPI is a virtual emporium and the most sophisticated source for shotshell handloaders. They have an almost unbelievable catalog listing of innovative specialty tools, equipment, components and fun gadgets for the shotgunner. Their excellent "Technical Guides," on many reloading subjects, are the best available. Be sure to look into *"Advantages IV."* This BPI Technical Guide is the perfect manual for anyone who has ever wanted to master the art of the shotshell. New handloaders and seasoned veterans alike will find this guide enjoyable, educational and indispensable; it's the cornerstone for choosing components and high-performance loads. If you're a 16-gauge handloader get BPI's free catalog or for that matter, 24 and 32–gauge handloaders will find a home for their reloading supplies and information.

Ballistic Products, Inc.
Box 293
Corcoran, MN 55340
888/273–5623
www.ballisticproducts.com
Attn: Customer Service

Enlightened handloaders will always explore additional sources of reloading supplies and information. A complete listing of manufacturer's of shotshell reloading equipment and supplies is located on the "DIRECTORY OF MANUFACTURERS" page in the front of this handbook. Listed below are names and contact information for some additional sources:

Precision Reloading, LLC
124 S. Main ST.
Mitchell, SD 57301
605/996–9984
www.precisionreloading.com
Attn: Customer Service

Reloading Specialties, Inc.
Box 1130
Pine Island, MN 55963
507/356–8500
http://www.reloadingspecialties.com
Attn: Customer Service

There are many interactive bulletin board forums on the Internet for serious handloaders to share experiences, ask questions and just enjoy the fellowship of other handloaders in cyber space. If you're searching for migration reports to dog training tips, or just want to have a great time discussing shotshell reloading. Look to these forums, you'll be glad you did. Go to these web addresses:

http://800shotgun.com

http://refugeforums.com

http://shotgunsports.com

http://www.shotgunreport.com

http://www.shotgunworld.com

http://www.trapshooters.com

http://www.waterfowler.com

CHAPTER 4

Reloading Basics—Now Let's Start Reloading

On the next pages, handloaders will find a general description of each separate step involved in shotshell reloading on a *RCBS Mini Grand* and important procedures prior to actual reloading. This discussion is not intended as a substitute for the detailed instructions provided with your *RCBS* shotshell reloading press. Always read the instructions included with your reloading press very carefully. ***Catalogs and instruction manuals that contain appropriate advice for the use of RCBS presses are available from the factory upon request.***

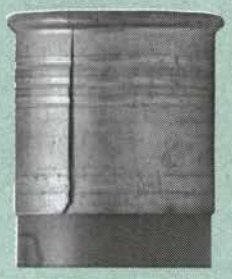
Inspect the hull

The first step in reloading is to examine your empty hulls to see that they are clean and dry, have no split ends, no cracked or split metal bases, and have no other visible damage. Watch out for wet hulls. If you shoot an autoloader, or pump, year-round and the hulls fall on the ground, you're going to get some that are wet. Let them dry out thoroughly before reloading or you'll have damp, useless powder or primers and experience misfires or bloopers. Inspect for feathers, leaves, twigs, dirt dauber nests, etc., on the inside.

Discard those that are obviously damaged. Look for pinholes at the junction of the metal base and the hull body. Paper cases are especially prone to develop these "pinhole burns" after being reloaded and fired two or three times. Separate the hulls by brand and base wad height. Look each hull over carefully and properly segregate and classify them.

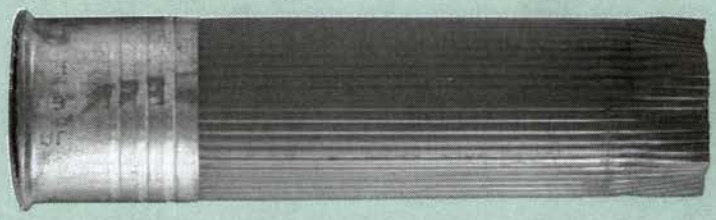
Do not mix different brands—common sense must prevail here. Remember, we must reload according to a specific laboratory-tested recipe—if you want chocolate cake, then follow the chocolate cake recipe.

Failures or defects to watch for when inspecting hulls



Metal head split
May be caused by metal fatigue, defective material or workmanship, or from metal being too hard or incompletely annealed during manufacturing. Discard hull.

Paper fatigue
Pinhole burn-through occurs at the edge of metal heads. Ejectors will sometimes pull metal heads off, leaving the paper tube in the chamber. This could also occur with plastic hulls. Discard hull.



Rim Bulge or Split
Caused by gas pressure leaking around a loose paper, fiber or plastic basewad. May be caused by defective material or workmanship from metal being too hard or incompletely annealed during manufacturing. Bulges may occur in a gun with excessive head space. Discard hull and have gun checked for excessive head space.

When a handloader sets up a new reloader, the following suggestions will be helpful.

Plan for an optimum layout

Determine the location on your workbench so you can see all of the stations of your reloading press and where the handle feels just right. While this seems obvious, the height of the press will drive your comfort whether you stand, sit or a combination of both. Keep shells, wads and a big box for finished shells as nearby as possible without interfering with your machine. That way your components will be within easy reach and you've minimized your movement to maximize comfort and speed.

the height of the reloader will drive your comfort whether you stand sit or combination of both.

Secure your reloading press to the right surface

You'll be amazed at how lead shot can bounce all over the place. When you spill shot—and you will—it will hit your hard table and bounce to the floor. One way to solve this is to secure (bolts, screws, etc.) your press with a large baking tray or cafeteria type tray between the bottom of your press and tabletop. The lip that surrounds all of the sides will prevent a lot of shot from falling to the floor. Another solution is to put thin foam rubber, carpet or other soft material around your press to catch the shot. Secure your reloading press to your workbench or to something solid.

Locate an area of your bench you can drill holes in or secure it to a piece of plywood large enough that you can clamp the plywood to the table. Some workbenches just don't allow for a permanent installation so the "plywood" method allows the reloader to be removed and stored in a more convenient location.

Another consideration is to mount your *RCBS* press on a *RCBS Accessory Base Plate-2*. The base plate is secured to a workbench with included fastening hardware. This accessory saves time, space and eliminates a bench top full of holes. The pre-tapped, letter coded holes provide several combinations to mount or dismount several *RCBS* products including the *Mini Grand* and *The Grand* shotshell presses. When finished reloading, the press can be removed and stored in another location, that frees up limited workbench space for other activities.

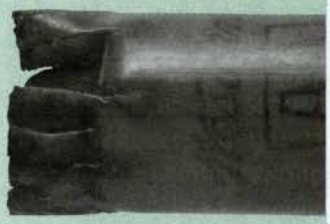
Accessory Base Plate-2

Body Split

May be caused by defective plastic material or workmanship. Burned or discolored plastic will be apparent. Discard hull.

Tube Pinhole Burn-Through

Possibly caused by defective plastic material. Burned or discolored plastic will be apparent. Discard hull.



Crimp Fatigue

Most plastic hulls fail at the crimp from repeated reloading. This may cause bloopers from lack of crimp resistance. Prior to failure, a weak crimp may open up, leak shot into shell bag, or gun's magazine and action. Discard hull.

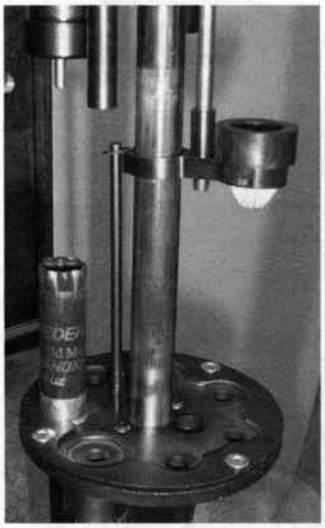
OK, we've inspected and segregated all of our hulls—let's look at each step of the reloading process on a *RCBS Mini Grand.*

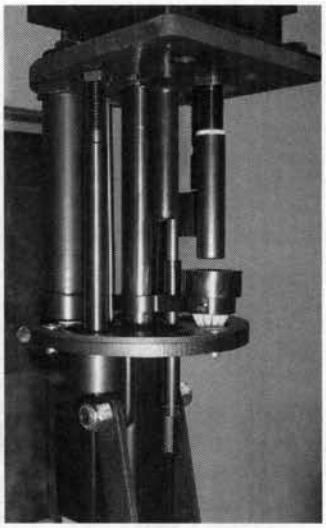
Mini Grand press function by station

The *Mini Grand* is a semi-automatic single stage shotshell reloading press. Hulls must be moved from station to station manually to complete the reloading procedure sequence.

Mini Grand mounted on Accessory Base Plate-2

STATION #1—Depriming, sizing, and hull mouth expanding on *RCBS Mini Grand*





Depriming the Fired Hull

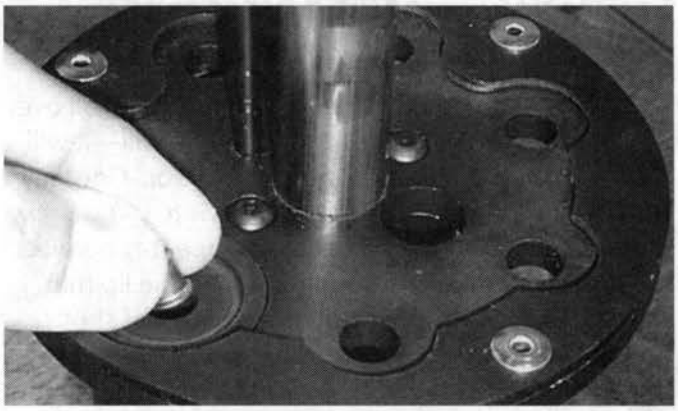
With manual reloading tools, the spent primer is removed with a punch and hammer. With a semi-automatic single stage reloader, like the *RCBS Mini Grand*, the initial pull of the handle at station #1 pushes out the spent primer, expands the mouth of the hull to permit easy wad insertion and seating and resizes the metal base of the shotshell hull.

Resizing the Metal Head

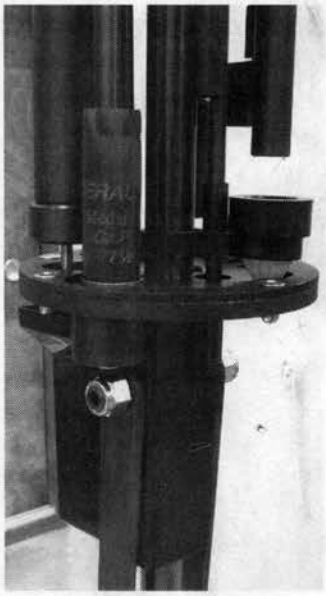
Shotshell metal heads are made of brass, brass-plated steel and zinc-plated steel. When the shotshell is fired, the head is likely to expand to the size of the chamber in which it is fired. If the shell is continually fired in the same gun, resizing probably will be unnecessary, but if the fired shells are from a different gun, you will most likely have to resize the metal head.

The most common resizing method is to force a hardened steel ring of the proper diameter down over the metal base, squeezing it back to the original factory size. This time proven method of sizing is used on the *RCBS Mini Grand* and *The Grand presses.*

STATION #2— Seating a New Primer on *RCBS Mini Grand*

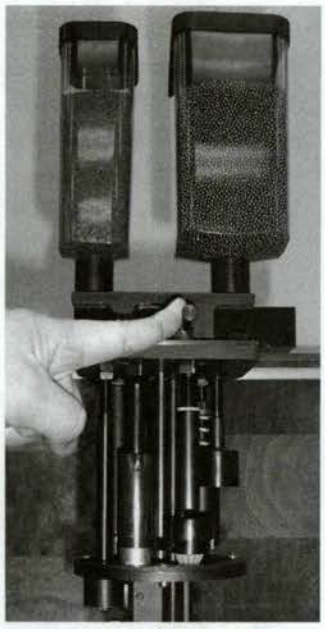


Repriming



After the spent primer has been removed, a new one must be inserted in the primer pocket. Manually place a new primer in the primer seating station; make sure the primer is open side up. On most semi-automatic single stage reloaders, a pull of the handle at station #2 forces the shell down over the new primer. On the *RCBS Mini Grand*, primers are seated in place, by feel, with pressure from inside the hull. This eliminates dished heads. Check to make sure the primer sits flush or a little below the level of the face of the case head. Full cycling of the handle is not achieved at this station.

STATION #3—"Dropping" powder on *RCBS Mini Grand*



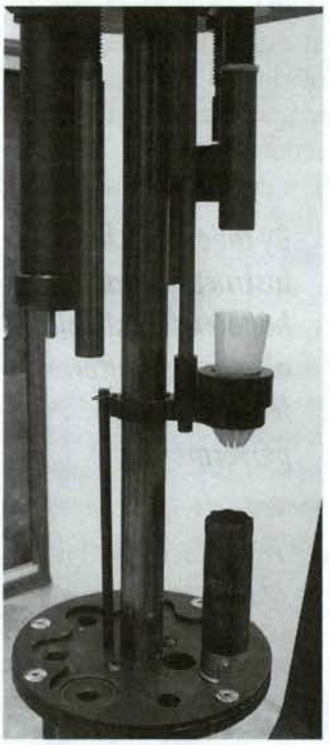
Charging the Powder

The next step is to put powder into the primed, empty shell. There are several ways to measure powder. The least accurate is hand dipping, as with a manual reloading kit. Hand dipping relies completely on the ability of the operator to measure uniform charges and pour the powder without spilling.

The volumetric measure system is the way the factory loaded the shell originally, and is the method used by the *RCBS Mini Grand* and *The Grand*. The volumetric measure, common to all *RCBS* presses, and most other semi-automatic reloaders, consists of a bar containing a powder and shot bushing of a given volume. By sliding the charge bar handle to the right powder is dispensed into the hull. This is the quickest method of measuring powder, and is much more accurate than hand dipping. The disadvantage is that it measures volume, which may cause slight variations in the load due to differences in various powder densities. Undue agitation of the press can cause the powder to compact, resulting in heavier powder loads. By following the *RCBS* instruction manual, handloaders should always get uniform loads and good performance.

Of course, weighing each individual charge is the most accurate method. Obviously, it is also the slowest of the three methods. *RCBS* recommends that handloaders periodically check charges on an accurate powder scale when reloading. After reloading two or three hulls, handloaders should verify the powder charge in the following manner. After "dispensing" the powder, remove the hull from the press, and weigh and record the powder charge. Return the powder charge into the hull and continue the reloading sequence. By repeating this weighing procedure four or five times, handloaders can determine the average weight. If the average weight isn't the amount given in the loading recipe, remove the powder bushing from the bar and install the next larger bushing.

STATION #4—Seating plastic wad on *RCBS Mini Grand*



Inserting the Wad Column

Regardless which reloading system is used, the wad must be handled manually. The modern one-piece wad column is commonly used to separate the shot from the powder. Wads also protect the shot from deforming (abrading against the sides of the barrel) and to serve as a space filler to bring the shot to the proper level. Of course, handloaders must use the wad column that is given in the reloading recipe. Place the wad into the wad guide and lower the handle to its lowest position. The wad will pass through the wad guide fingers into the hull. Observe, by feel, the wad seating resistance (pressure) as the handle reaches its lowest position. Our choice of wad pressure is approximately 40 pounds when we reload—this is achieved by adjusting the wad seating ram about 1/8 to 3/16th inch lower after the wad is completely seated on top of the powder. This ensures that the wad is firmly seated on the powder and that all air has been purged. Pressure also pre-collapses the shock absorbing section of the wad and takes some of the work off the crimp die as the final crimp is closed. This procedure prevents many collapsed or bulged reloads. Handloaders should check on the reloading press and adjust the seating tube accordingly. Be aware of, by feel, each time a wad is seated. Any variation of perceived pressure must be considered a sign of concern. Detecting light pressure could indicate a light charge of powder, an improper

Any variation of perceived pressure must be considered a sign of concern

or damaged wad, a damaged or partially missing base wad, or, possibly that the seating tube has become loose. Experiencing a heavy pressure feeling could indicate a heavy charge of powder, an improper or damaged wad, a loose or damaged basewad that has slipped forward, or an obstruction in the hull itself such as a leaf, twig, feather(s) or even a dirt dauber nest (yes, we've seen those, too). Light or heavy variations could also mean that a different hull, with a different internal volume, might have been mixed in by accident. Strive to develop a feel for uniform wad seating pressure each time a wad is seated.

By following the RCBS instruction manual, handloaders should always get uniform loads and good performance.

After the wad has been seated, continue to hold the handle in the down position to complete the next step.

STATION #4—"Dropping" shot on *RCBS Mini Grand*

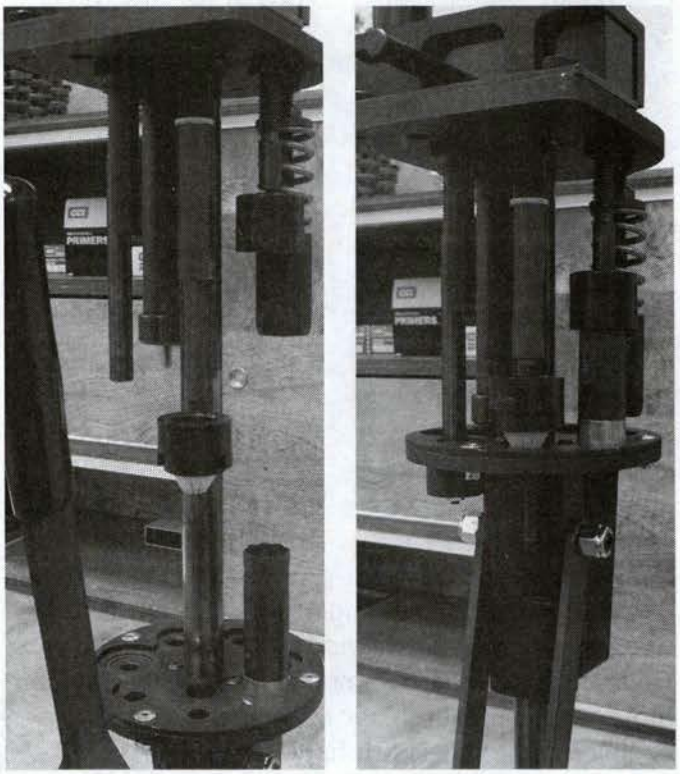
Adding Shot

The last item to be added to the shell is the shot. This can be done several ways. With a manual reloader, the shot must be carefully dipped, measured and poured (without spilling). Most semi-automatic reloaders use a built-in volumetric measure or "charge bar." This bar contains two holes, one for a powder bushing (discussed previously), and one for a shot bushing. Remember, when we seated the wad, we continued to hold the handle in the down position. Now, slide the charge bar to the left to dispense the shot charge.

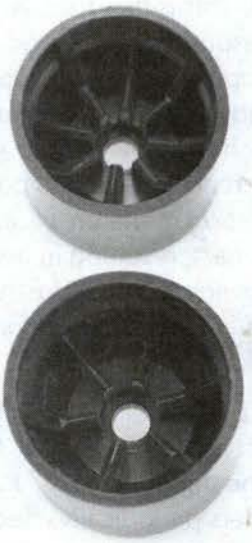
As the shot size increases, so does the difficulty of moving the bar to drop it. Obviously, very large diameter shot and buckshot will not load into and "drop" through a bushing. Therefore, shot larger than #5 must be weighed, or counted out (buckshot), and inserted using a funnel or placed by hand (buckshot).

STATION #5— Precrimp on *RCBS Mini Grand.*

Crimping the Shell—A Two-Stage Process

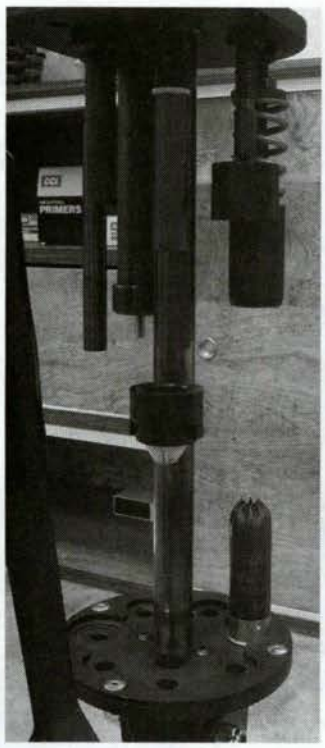


Two Types of Crimp Starters: 8-Point, 6-Point



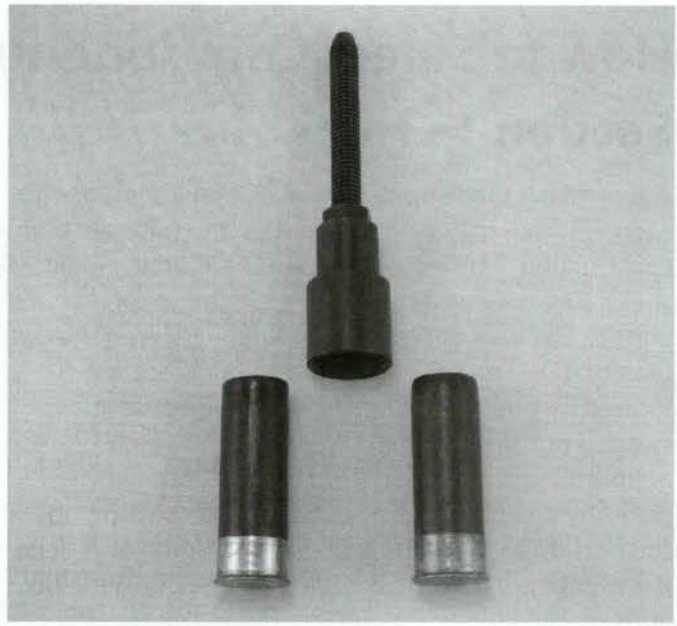
After all new components have been inserted into the hull; the last operation is to close the mouth. Almost all modern reloaders seal the shell with a "star" or folded crimp. This is a two-stage operation on a *RCBS* press. At station #5, we will pre-crimp our shell with a 6- or 8-point "crimp starter", depending on the number of folds in the original hull. The crimp starter partially closes the hull along the original fold lines of the factory shell. Paper cases are usually closed with a 6-point crimp. Detailed instructions and adjustment procedures are fully explained in the product instruction manual shipped with all *RCBS* presses.

STATION #6— Finish crimp on *RCBS Mini Grand*



The final process in reloading a shotshell is crimping. At station #6, the shell is tightly closed with the final crimp die. Lowering the handle raises the shell against the crimping ram, and the crimp is closed flat against the top of the shell. If the crimp is depressed or bulged out, adjust the reloading tool according to manufacturer's instructions. The finished shotshell should look just like a factory shell when finished. Be sure to inspect each shell as it's finished.

STATION #7— Optional Taper Crimp on *RCBS Mini Grand*



The *RCBS Mini Grand* has an empty station #7 where an optional taper crimp die can be installed.

To ensure proper functioning in a semi-automatic or pump shotgun, the optional Taper Crimp Die assembly may be required. The Taper Crimp Die provides a more radiused hull mouth for smoother feeding. The complete assembly is available in kit form, with instructions, and is installed at the empty Station #7 of the *Mini Grand*.

Steel Shot Conversion Unit

The *RCBS Steel Shot Conversion Unit* (an option for the *Mini Grand*) consists of a larger inner diameter wad seating/shot drop tube. This larger inner diameter allows for the dispensing of large diameter steel shot (#5 and greater). This unit replaces the factory installed assembly which shipped with the *Mini Grand*. Detailed instructions are included with the conversion kit.

Reloading 3" and 3½" Hulls on the *RCBS Mini Grand*

No additional parts or tools are required. Detailed instructions to adjust dies, at certain stations, are provided in the product instructions shipped with all *RCBS* reloaders.

CHAPTER 5

How to Select Components

Section 1 - Hulls

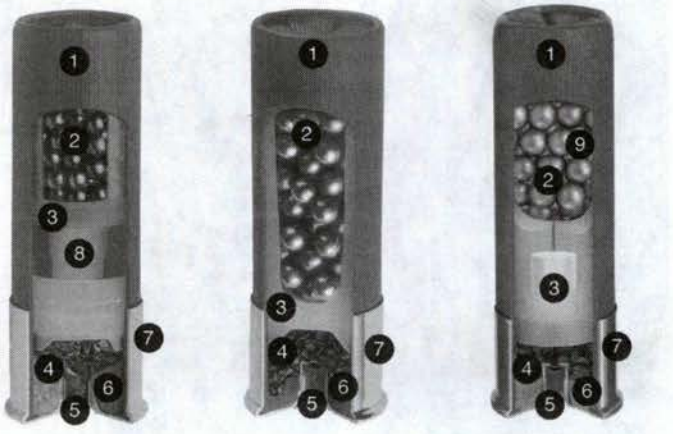
A shotshell is made up of several different components, each of which may have similarities and differences in construction. The head and primer are similar in all shells. The tube and base wad are either paper or plastic. The wad design and powder vary with the type of hull. Lead shot pellets and buckshot are formed by pouring melted lead through a sieve or swaged (formed in a die). Wads for lead shot ammunition are molded from flexible, low-density polyethylene plastic and have a cushion section on the bottom that collapses on firing, helping to reduce the number of deformed pellets and recoil. We'll look at these similarities and differences, in this chapter, and thoroughly discuss each part of both the hull and the components required to reload this hull.

Domestic-made, factory-loaded shotshells are marvels of design and construction. They will resist handling and weather extremes. We carry them around in the trunk of our cars for countless miles, then we walk them for more miles in the field. Sometimes they get cold and wet with us in a goose blind in a northern marsh, or just wet, and sometimes cold, too, in a pickle barrel on a southern rice field. Out west, they get hot during the early white wing dove season along the Mexican border. We drop them in the snow, mud, dirt and water, yet we're always convinced that they will stand up to the slam-bang forces of feeding, go "BANG" when we pull the trigger, then extract and eject. That's a lot to ask from a factory-made product. Despite all this, some of us then pick up the fired hulls from the snow, mud, dirt and water, take them home with the firm conviction that we can "stuff-em" full of new components, and go right back out and do it again tomorrow, next week or next month. And you know, they seem to always go "BANG", over and over again...

It wasn't always like this. Many people will remember some of the older paper cases with high-brass base metal heads that ran halfway up the side of the shell. Well, those "bullets" were marvels in their day, too, but they swelled when they got damp and wouldn't chamber. Get them wet and they wouldn't fire at all—usually at the most inopportune moment.

Times, people, equipment and components change, mostly for the better. Some of those old components, that are now discontinued, we've tried to forget. Practice, practice and more practice cured shooting problems, and a Lachmiller "Super-Jet" (long discontinued) helped us to become better handloaders. More and better information was coming available and we learned that,

Anatomy of a Shotshell



Lead Shot | **Steel Shot** | **Tungston-Iron Shot**

1. Tube
2. Shot
3. Wad
4. Powder
5. Primer
6. Basewad
7. Head
8. Cushion
9. Plastic Buffering

"You just can't make up for being a poor shot by being an excellent handloader." The former, we were; the latter, we thought we were! Today's reloading components aren't going to change as much in the next few years as they have in the past. In fact, it's going to be hard to improve on most components.

When you pull the trigger, your shotgun's firing pin dents the primer cup inward, forcing some of the primer mix against the point of the anvil. This causes lead styphnate crystals to fracture. The crystals react to this by exploding. Since they are evenly distributed throughout the mix, they ignite more powerful secondary ignition constituents, which, in turn, ignite fuel particles and agents, releasing oxygen needed for fuel-burning. Instantly the whole primer mixture is consumed, sending a jet of white-hot gas and incandescent particles through the flash hole to ignite the powder granules. Large quantities of gas are produced by the burning powder; the over powder portion of the plastic wad obturates (seals against the

inside walls of the hull) and begins moving forward, pushing the shot in front. This, in turn, pushes the crimp open, and, in just microseconds from the trigger pull, the shotgun is "fired." You are left with an empty hull that can be reloaded many times. "How many?" you ask. Well, many of today's plastic hulls can be reloaded from 5 to 15 or more times depending on their quality. So, SAVE THOSE FIRED HULLS!

"You just can't make up for being a poor shot by being an excellent handloader."

Choosing The Hull—The Hull Truth

The hull is the heart of the shotshell. Proper choice of fired hulls is one of the most important choices you must make to keep your reloading simple. Hulls are not all the same! What reloads perfectly in Federal hulls may not in Remington or Winchester even though they may look similar. Remember—hulls are constructed differently from one manufacturer to another as well as different types from the same manufactured brands. The picture below shows several sectioned hulls made by Remington. The basewad are all of different heights—some subtlety. All have been cut off to 1-1/4" length to save space for the examples.

The hull contains and ties together all of the other components so the reload will withstand all the handling, feeding and weather to which we will subject it. Not all hulls of the same brand have the same internal volume. Ballistics will be completely different just as the ballistics for different brands vary. Each time you use a hull with a different capacity (internal dimensions), you must assemble a different set of components to reload it properly. The only safe way is to follow the chosen recipe exactly! Again, be sure to identify hulls correctly; some may look alike but have different internal volumes. The old chocolate cake "commandment" again.

Which Shotshell Hulls Should I Reload? Good question—there's a lot of decisions. Federal Gold Medal, Remington STS, Winchester AA. There's plastic, paper, target, field and magnum. Some have low brass others have high brass. Then, there are so many different types of components available. The list seems to go on and on. Where does a handloader start to find a combination that's good to reload and good to shoot?

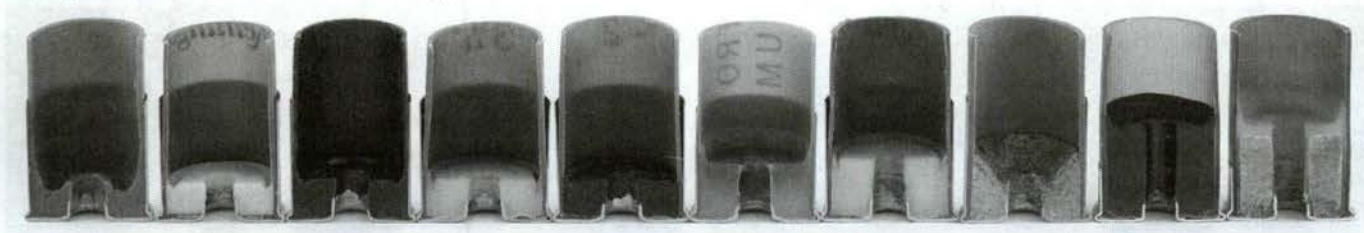
Regarding promotional loads from the "marts": Remember the familiar caveat, "let the buyer beware?" It fits here like an old shoe. Most promotional loads are great values to buy and shoot once but if you buy these loads, pattern them against a known premium load before you back your pickup up to the store and buy them out. Some are made with a thin molded plastic basewad and others are one piece plastic, (all would, of course, have a metal head). Low price, however, comes at another cost. That basewad insert may eventually loosen and detach. Some handloaders say only reload them once. Others say three or four maybe—depending on the condition prior to reloading. The problem is if the basewad insert detaches when the shell fires, it might lodge in the gun barrel. This may not even be noticed, either because one is using an autoloader and can't see down the barrel, or because you aren't in the habit of checking your barrel/s. When the next shell is fired, with an obstruction in the barrel, there is a risk of damaging your gun barrel.

Which hulls last the longest? Another good question. While promo prices seem like a good deal, you can't reload them near as long as other high quality shells—notably the Federal Gold Medal, Remington STS and Winchester AA brands. These three premium hulls are designed and manufactured specifically with handloader's benefits in mind.

There are some exceptions. Remington Gun Club hulls (Unibody construction) are two-piece—a brass plated steel metal head and compression formed tube. This hull design has excellent reloadability characteristics. See the picture below.

Remington Gun Club Hulls

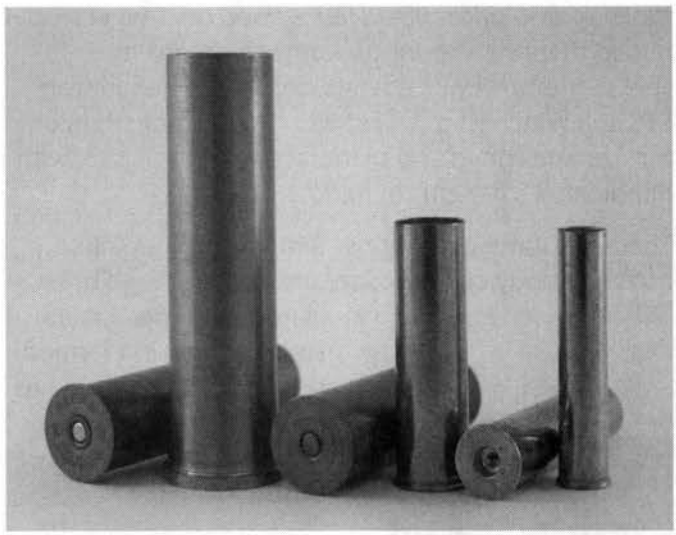
Remington Hulls With Different Base Wad Heights



Be consistent. It's a good plan to reload as few hull types as you can. Decide and stick to a hull/primer/powder/wad/shot combination (load recipe) that works in your press and in your shotgun. Only when you're completely comfortable with one brand of hull and recipe should you branch out into other combinations.

Shotshell hulls are generally classified by the material from which they are constructed. Usually we refer to hulls as paper, plastic or metal. Metal shotshell cases are almost relics of the past. There could possibly be some factory research going on, but we don't know of any at this time. In addition to the all brass cases, we have seen hulls made from zinc and aluminum. Paper, while still being used, is slowly disappearing in favor of shell cases made from superior types of plastic.

METAL CASES—Not much going on here. The picture below shows some brass metal shotshell cases from the past. Some old and some recent commemoratives. If you have any of these, put them up on the mantle and think up a good "Grandpa told me" story to tell people when they ask, "What's that?"

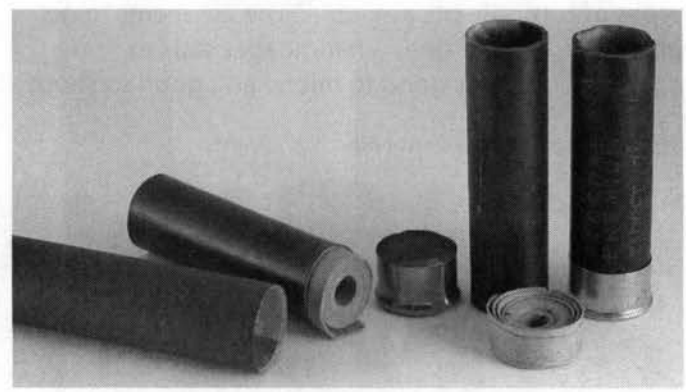


Brass Cases—Different Gauges

One of the most interesting projects manufacturing shotshells using metal cases was conducted by Winchester during the 1950's for the US Air Force designed survival gun (22 Hornet/.410 shotgun). All-metal aluminum cases were impact extruded to extremely close tolerances and waterproofed as much as possible after loading. From this experience, a sporting round was developed. There was extensive research conducted in the field by target shooters and hunters. Performance wise there were no problems. Gauge wise there was one problem that seemed impossible to overcome. Winchester officials made the decision not to load 12-gauge shotshells but to invent the 14-gauge. Since the aluminum tube walls were so thin the internal dimensions, and ballistic performance, were essentially that of a 12 gauge. Some of Winchester's shotguns were chambered in 14-gauge—notably the Model 50 and a few in Model 59, both autoloaders. Public acceptance was not forthcoming so the project was dropped in the early 1960's. See the pictures below.

12, .410 bore and 14-gauge Aluminum Shotshells and Box of 14-gauge Factory Loaded Shells

PAPER HULLS—For the most part, paper hulls are all constructed in the same way. Paper shotshells were quickly embraced by upland shooters, but waterfowlers clung to brass hulls that did not swell when wet, a problem eventually addressed with waxed and lacquered paper shells. A tube is made from a thin, glue-coated sheet of paper wound around a mandrel. A wax or paraffin coating is then lacquered for waterproofing. Federal's design is a tube plugged with a "base wad" of tightly rolled paper. Some manufacturers made their base wads of a composition material—mostly asbestos (and no telling what else) was made into a papier mâché with glue and then molded in the tube. This was covered by a crimped-on metal (usually brass) head.



Manufacturing Stages of Federal Paper Shell Casings

Paper cases differ in the length of the paper tube, the height of the base metal head (brass), and the construction of the internal base wad. As with any material, these differences affect the volumetric capacity and, therefore, the reloading recipe.

The hull itself is referred to as having a high base or low base; this describes the height of the inside base wad which determines the hull's volumetric capacity. The terms high brass and low brass are also used; these refer to the height of the metal head of the hull. High brass traditionally means a high velocity field load and low brass a light field or target load. Actually, the brass and base wad height of today's plastic hulls isn't a significant factor in case strength at all. The actual use of a particular case is limited by the internal capacity, not the strength consideration. Today's popular low brass plastic hulls used in sporting clays, trap and skeet loads have more than ample strength and are ideally suited for field loads because of their reloadability.

making the specially strengthened plastic tubing is a German technique called "The Reifenhauser process"

The upshot of this is very important, because we still live with the results of a decision that applied only to the paper tube hulls. Paper tube hulls are weak where the paper and metal are joined. When light field loads were manufactured, the paper to metal joint didn't require much "brass" for strength. Heavy field loads required more strength and the manufacturers used what is now called "high brass." Somewhere along the line this difference in brass height "took hold" in shooters' minds and is carried over today. High brass hulls do look really tough and add sales appeal, and the manufacturer tacks on a couple more bucks for this "macho" image. Perhaps it reassures the uninformed to believe that today's high brass plastic hull is stronger than the low brass type.

I have met many people in years past that knew without a doubt that a "low brass" load could not be a duck load. Only "high brass" loads were duck loads. Some people have called it "the high brass duck load theory." This understanding undoubtedly had a parallel with the "long tom barrel theory" —"The longer the barrel, the further it'll shoot." Yet, to this day it endures. Look at the picture below. You will notice a wide range of "brass height."

Plastic Hulls—More, Hull Truth—The Poly-Formed Hull

Remington was the first American ammunition manufacturer to introduce shotshells with plastic hulls in 1960. For years, ammunition manufacturers had looked for a material to replace paper hulls. They experimented with aluminum and synthetic materials that were tougher, would not swell when wet, were less expensive and required fewer manufacturing steps. The production of paper shotshells was said to require more than a hundred separate operations. Remington advertised their new polyethylene hulls were pre-stressed by a "secret process to make them tougher than whang leather." Winchester-Western introduced plastic shotshells manufactured by this process in the early 1960's. Federal made the transition in 1965 and was in the forefront in the development of nontoxic shotshells, introducing its first steel load in 1973. Federal was also the first manufacturer to color code its shotshells by gauge in 1960, a convention soon adopted by other manufacturers. In 1961, another marker appeared on all shotshell boxes manufactured and sold in the U.S. It was the warning "Keep Out of Reach of Children."

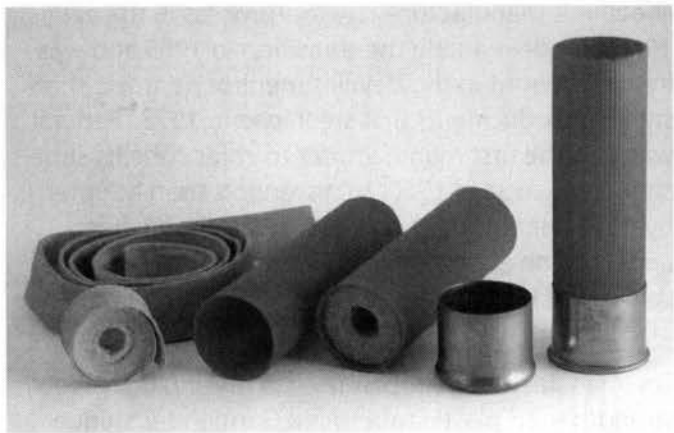
The manufacturing process used in making the specially strengthened plastic tubing is a German technique called "The Reifenhauser process". The various brands used different construction and material for the base wad, different colors for the plastic tube, and varied the type and height of the base metal. Most handloaders usually call hulls made by this type of construction "poly-formed" hulls. The extruded tube contained a number of fine grooves on the outside

Random hulls—No Brass to All Brass

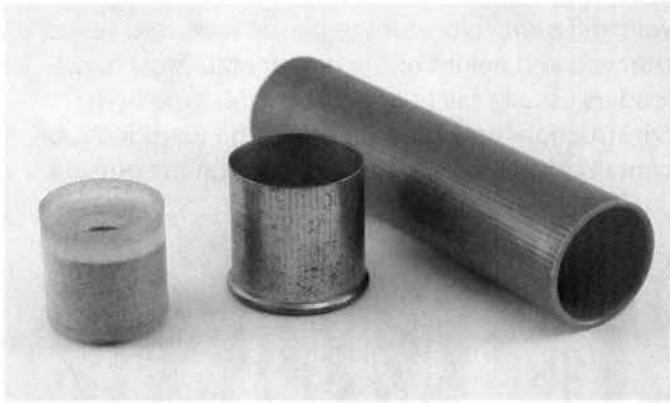
and was smooth inside. It was also fairly translucent so the contents were visible to the shooter. The tube was cut to a required length, the molded plastic base wad inserted, and a permanent assembly was made by adding a brass-plated steel head that was swaged and grooved, thus locking the parts together. Remington claimed they could be soaked in water for a week or more and still fire properly. Furthermore, they could be reloaded many more times than paper-hull shotshells.

Base wads were made of the same materials and techniques used in the paper tube type hulls. Paper, molded plastic and composition materials of mainly asbestos and glue were used. The typical parts required to make poly-formed hulls are pictured below. At the present time, there is no reloading data available for this new style Winchester polyformed hull, which is NOT their new HS design.

Brass and brass-plated steel were used as base metals. Brass is the superior metal in this application but is more expensive. Brass sizes easily in the hardened

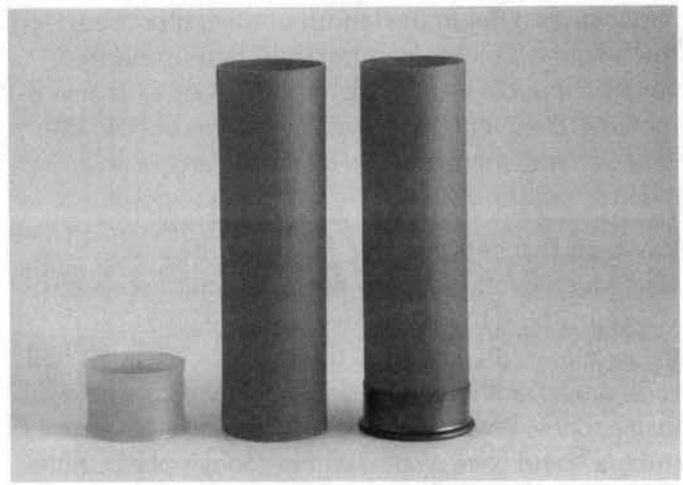


Basic Parts—Federal Plastic Hull

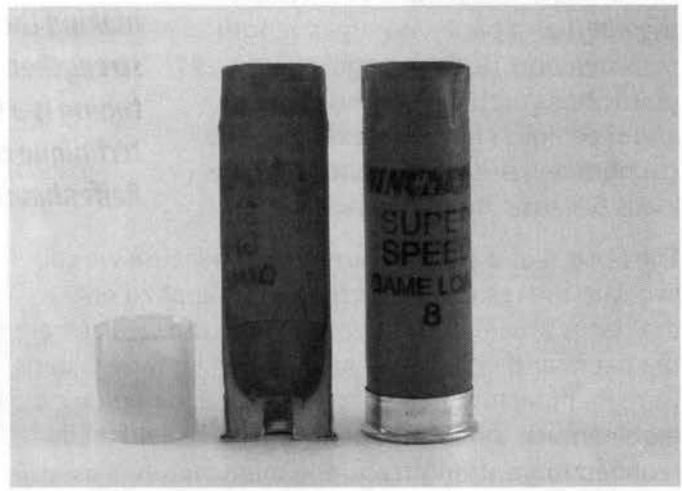


Basic Parts—Remington SP Hull

steel ring sizers of the *RCBS Mini Grand and The Grand* reloading presses. When the shell is fired, the metal expands and then springs back somewhat as pressure subsides. Brass springs back much more than steel.



Basic Parts—Old Style Winchester, Polyformed Hull



Basic Parts—New Style Winchester, Polyformed Hull

Hulls with brass-plated steel heads will require more "sizing." Another advantage is that brass only tarnishes where steel rusts. In the dry, arid regions of the west the "SP" (steel plastic) hulls weathered much better than in areas of high humidity and moisture. Handloaders who live where it's "wetter" continually fight a battle with rust, not only on their firearms but also on everything else made of steel, including hulls. The brass plating holds up fairly well, all things being considered. Where excessive sizing is required, and the sizing ring has a rough surface, the ring sometimes scrapes or shaves the plating from the base. The "rust worm" then has a much better surface to start his destructive work. Scratches and rough surfaces of a sizing ring should be polished for proper sizing of metal heads.

Handloaders lived with those problems and grumbled a bit, but all the time were getting more reloads out of their hulls. Reloading was catching on, and the major manufacturers began releasing components for sale to handloaders. Remington introduced its POWER PISTON one-piece plastic wad in the 1960's, and Winchester-Western wasn't far behind with the A-A

Resized Hulls Showing Size Ring Scrapes

Rust on Previously Sized Hulls

wad of the same one-piece construction. We'll discuss wads in more detail later. Reloading was not only catching on; it was becoming easier, too.

The One-Piece, Mostly Plastic Shotshells

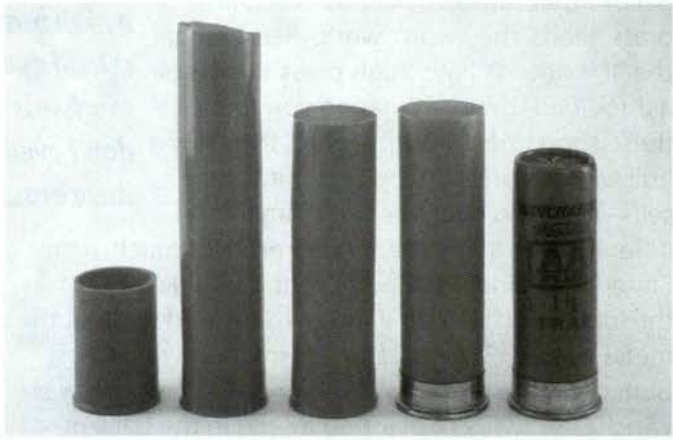
The intense competition among manufacturers of shotshell ammunition continued and sparked considerable research and development for better shotshells. The shotshell market of the 1950's and 60's represented big dollars, and during this time, most major manufacturers experimented with injection molding using various types of plastics—ethyl cellulose, polyethylene and other thermoplastic materials. Injection molding processes use a closed die that has the exact shape of the part being molded. Hot, melted plastic is injected into the die under thousands of pounds of pressure. After the die cools, the finished parts are complete.

Scratches and rough surfaces of a sizing ring should be polished for proper sizing of metal heads.

No matter what kind of plastic was used, the end results of the tests were all the same. With the high temperatures of hot weather, the shot charge dug into the tube walls and tended to tear off the front end of the hull. In cold weather, the plastics became harder and brittle. When fired, these hulls tended to split lengthwise. These and other failures ended most injection process projects.

The Compression-Formed Shotshells: Most Expensive in the Beginning— Least Expensive in the End

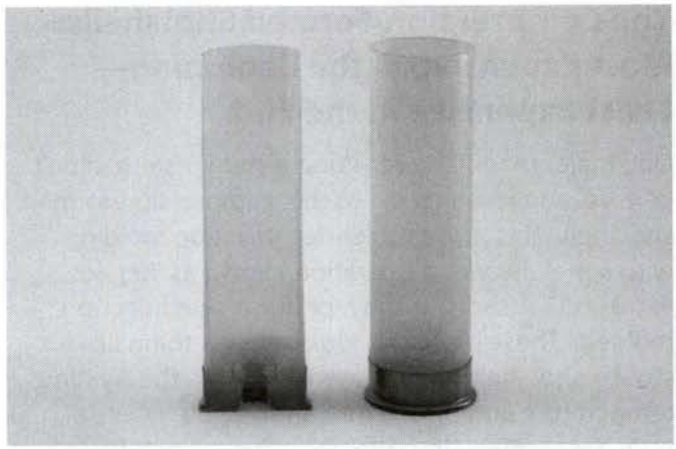
One major manufacturer, Winchester-Western, didn't give up, and research led to the "compression-formed" shotshell. This process blended injection molding with a metalworking operation known as "impact extrusion." A short, stubby "preform" was injection molded. These preforms, looking something like a stubby shotshell, were heated almost to the melting temperature and placed into another die where a punch was driven into the polyethylene material, causing it to flow upwards into the space between the die and the punch. When removed and trimmed, we have, generally, the plastic portion of today's compression-formed hull. In the early 1980's, Winchester considered marketing their AA compression formed hull as a component. Some special made hulls were shipped to manufacturers of reloading



W-W Parts of Compression Formed Hulls

presses. The hulls were manufactured with a semi-translucent tube and a nickel-plated metal head. They were skived but not precrimped. Remember, reloading presses are just that—reloading presses. The uncrimped or precrimped tube requires a loading operation to successfully crimp the loaded hull. Reloading presses do an adequate job but not perfect. After two or three reloads the crimp will begin to take a memory and crimp better. A six-point crimp seems to work the best in performing a loading operation on a hull that has never been precrimped. This prospective component AA hull never made it to market. Too bad as it would have made an excellent component hull. The picture on the next page shows a sectioned hull along side the "component" hull.

The walls of a compression formed hull receive a great amount of "working." This process made the plastic



Winchester's Component Hull and Sectioned Component Hull

One Piece W-W Plastic Hulls

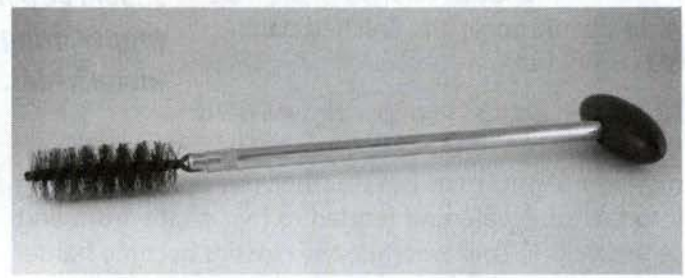
strength about six times greater than the injection process alone. Extensive tests showed the metal base was not even needed. It was decided to manufacture and market these shells in Europe. This project was short lived because European and American sportsmen share something in common—both believe that if shotshell hulls don't have brass heads, they won't work. Remember the "If it doesn't have 'high brass' it can't be a duck load theory." What do you think these sportsmen thought when they saw a hull without brass? Stop and think yourself—have you ever been told anything different by a major manufacturer? Not much, if any. Stated in a Winchester ad from the middle 1970's was the following: "...strong enough to be fired without the metal head..." Granted, this information was almost buried, but it's there just the same. Perhaps this was Winchester's way of planting a seed in the back of shooters' minds because with today's technology, it is possible to manufacture an excellent all-plastic hull.

You don't have to have a high brass hull to reload duck loads—much less that you don't even have to have brass at all

During the course of my sales career, I conducted around 25 to 35 reloading clinics every year at various retail sporting goods stores. For more than ten years my partners, others all over the country and I have been on a campaign to promote reloading. During the hundreds of clinics that we each have conducted, one of the hardest things to communicate to a prospective reloader is that *You don't have to have a high brass hull to reload duck loads—much less that you don't even have to have brass at all.* I discussed the message in the above ad with hundreds of people. Then I followed up by showing a fired one-piece, plastic, compression-formed hull made by Winchester-Western for the European market. This little jewel is shown at the top of the next column.

"Did it really work?" they ask. "Do ducks like water?" I answer. "Do they reload?" they ask next. "Just like a DOUBLE-A," I answer. O.K., for you readers who are wanting to tell me how a hull must have a metal rim for trouble-free extraction, I'll concede a little ground. Then I'll ask if you keep your chamber clean. "Sure" is the answer I'll probably get. The next picture will save at least a thousand words. Below you will see a picture of three hulls, with metal heads, that had a bad trip coming out of a dirty, rusty chamber. Yes, I'll concede that if metal doesn't always work we're sure to have a problem with plastic. With that I'll leave the rim hardening of all plastic hulls up to the experts, and I'll give you the solution to the chamber problem by showing you another picture.

Three Hulls with Metal Rim Torn by Extractor



Chamber Rod and Brush

During the late 60's and all of the 70's, the use of compression-formed hulls was expanded, and our garages started filling up with boxes of hulls. It was Winchester-Western's introduction of the A-A Target Loads for trap and skeet that started it all. Gradually field loads were converted and the same type of hull was introduced in the UPLAND, SUPER-X and SUPER-SPEED lines in all gauges. This was the only family of hulls made by this process until 2002. Our hulls were lasting longer, and there was a rumor on the reloading grapevine that these new hulls were lasting so long that reloading was starting to cut into the factory-loaded production. So, we hoarded all of the new fangled hulls we could for fear that the factories would discontinue their production. Just the opposite was true, but our garages are still full, according to our wives, just in case...

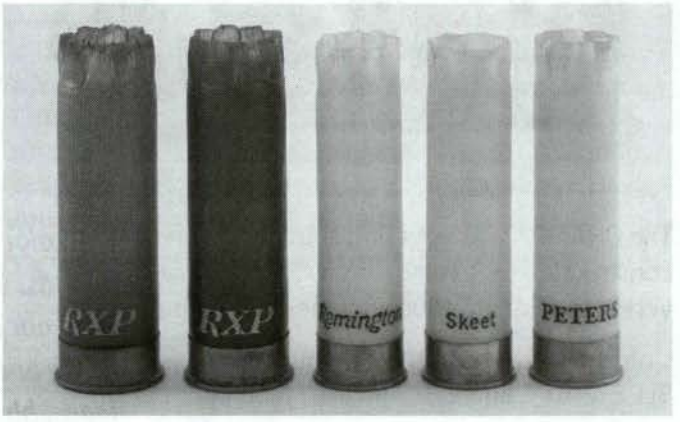
In 2002 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 12 and 20 gauge. Winchester's 2002 annual catalog, on page 4, announced in print the following, "For nearly 40 years, AA Target Loads have reigned as the standard of excellence and overwhelming choice of serious target shooters the world over. The improved AA's will carry on the standard for years to come. Each 12 and 20 gauge AA load features improved components and an innovative, high strength tube construction, increased reloadability and tighter bird busting patterns."

Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 8 the following, "Winchester has designed the new 12 and 20-gauge AA high strength hull to reload with the same reloading data as the old AA hull. However, on some reloading machines, even though the components and reloading data are the same, there may need to be a minor adjustment made to the reloading machine to optimize load fit and appearance."

The new HS design consists of three-pieces—a plastic tube, an injection molded plastic basewad and a brass head. The straight-walled hull, with a low internal basewad, should be a good choice for the handloader who wants to load heavier loads without experiencing increased pressures as would have been the result with the compression formed design.

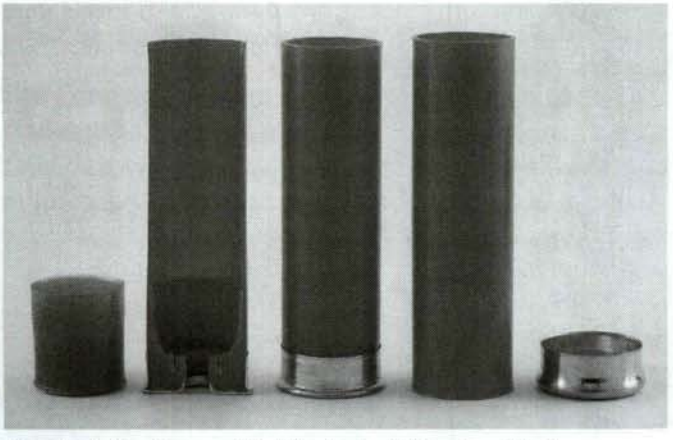
In the early 70's, Remington introduced its first compression-formed shotshell, the RXP. It, like the A-A, was introduced as a target load in 12-gauge trap and skeet loads. The Peters Ammunition division of Remington introduced the same loads, but changed the color in the plastic. In 12-gauge, Remington hulls are green, Peters hulls are blue. A few years later, a 20-gauge RXP evolved. Both are yellow in 20-gauge.

In the late 70's, Remington introduced its BLUE MAGIC in 12-gauge under its Peters brand. It was said to be



Remington-Peters "RXP" Hulls 12 and 20-Ga.

new and improved with a longer reloading life. This load was blue in color and had a smooth outside body. "Looks just like a 'DOUBLE-A' 'cept it's blue," many people were to say. The BLUE MAGIC hull experienced a mixed following among handloaders as the quality of the plastic varied from lot to lot. Most hulls were excellent to reload. However, on occasions shooters experienced "shootoffs" whereby the plastic portion of the tube would separate just ahead of the metal head when fired—picture shown below. The



Manufacturing Stages of the Winchester HS Designed Hull

Peters Blue Magic Hull Shootoffs

BLUE MAGIC line of target shells was quietly discontinued in the mid 1980's.

It wasn't too long after the RXP that Federal introduced its first compression-formed shotshell, the CHAMPION II in 12-gauge target loads only. This CHAMP II was very similar in design and construction to Remington's RXP.

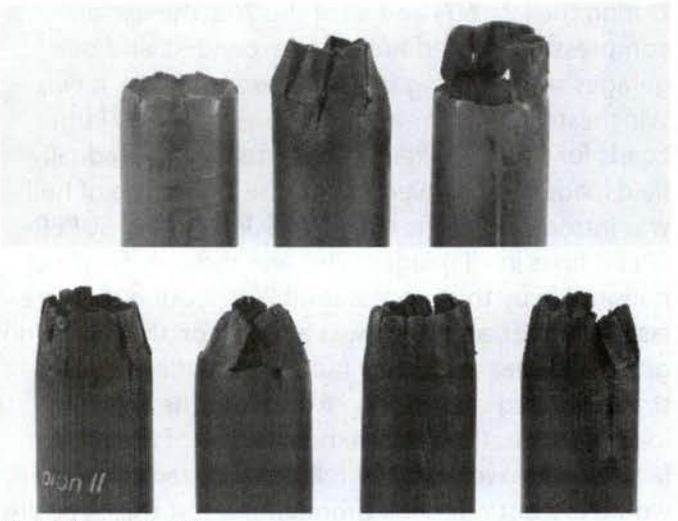
Federal Champion II Hulls

The CHAMP II was very similar in design and construction to Remington's RXP, and was a very attractive, translucent wine-colored hull.

Unfortunately, both the 12-gauge RXP, BLUE MAGIC and CHAMPION II factory loadings have been discontinued. Not all is lost, though, and we'll discuss the new introductions of each company shortly.

We "color coded" our reloads. The red ones were our duck loads, green ones goose loads, blue ones dove loads and wine ones our quail loads.

Maybe the reloading life had something to do with the demise of the RXP, BLUE MAGIC and the CHAMP II. In our work we continually are asked, "Do the red hulls last longer than the green, or blue or wine-colored ones?" Quite frankly, we always thought it was a matter of the factory's quality control of their plastic. We have used them all, and they are excellent. From time to time, however, we have encountered different "lots" of all brands that gave less-than-desired results. On one occasion, we tested a group of all colors at the local range. We reloaded on the spot and shot them over and over. Would you believe that with several hulls of each color we lost count of how many times we reloaded them! It's true. Regardless of color, they all lasted a long time, and the reloading life of that group averaged over 20 reloads. We used a light target load using Hercules RED DOT powder, as I remember.



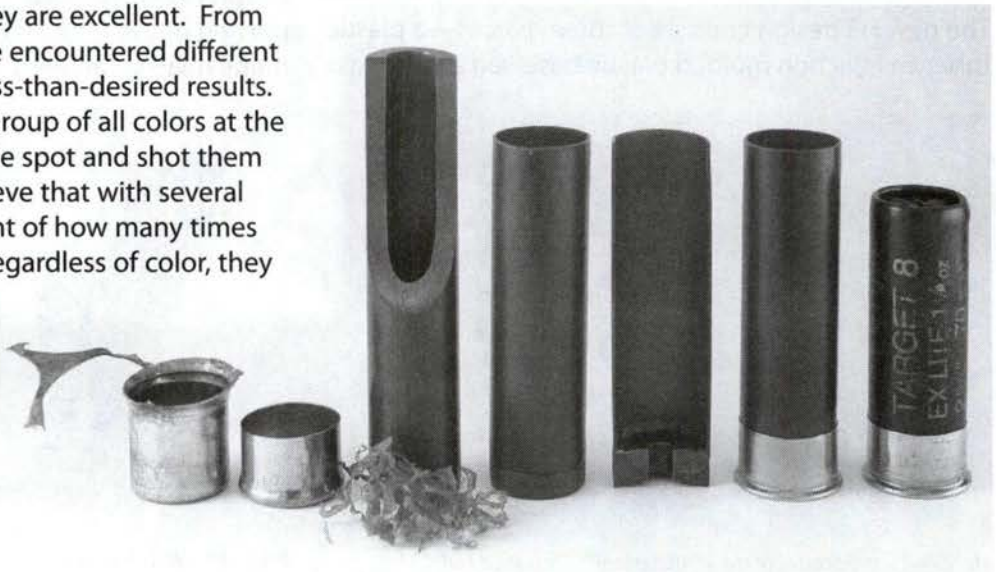
Hulls Worn Out at Crimp

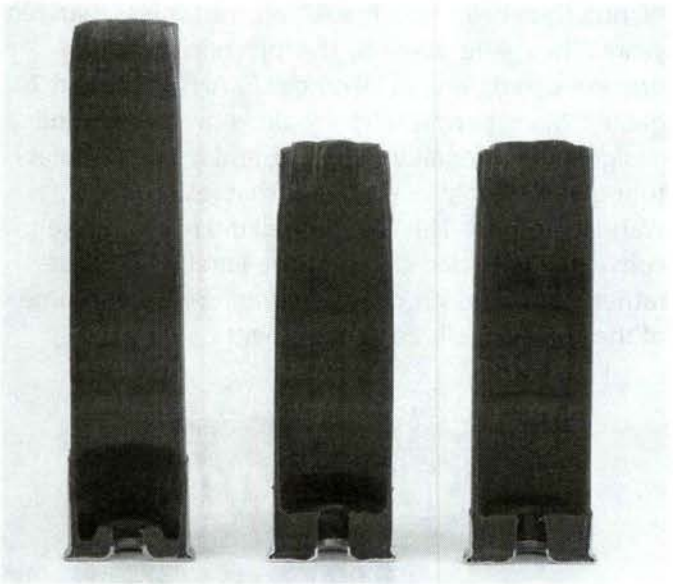
Pictured above are some of the hulls. You will notice that we reloaded some of them until the crimp shot off.

One of the reasons we were sorry to see these hulls discontinued was the use we had been making of them. We "color coded" our reloads. The red ones were our duck loads, green ones goose loads, blue ones dove loads and wine ones our quail loads. Sometimes there were variations in shot size, of course, but generally, that was our scheme of "color coding." Not all is lost, however, as there are new introductions from Federal, Remington and Winchester.

Federal replaced the CHAMPION II in the early 80's with its GOLD MEDAL line of target ammo in 12-gauge. The GOLD MEDAL is a one piece plastic hull, but it is not compression-formed. GOLD MEDAL has a single-piece thermoplastic hull with biaxially oriented, straight sidewalls, unlike

Basic Parts—Federal Gold Medal





Federal Gold Medal and Field Loads

compression formed hulls that have a slight taper. This is an excellent hull to reload, and the reloading life seems to be about the same as the compression-formed hulls.

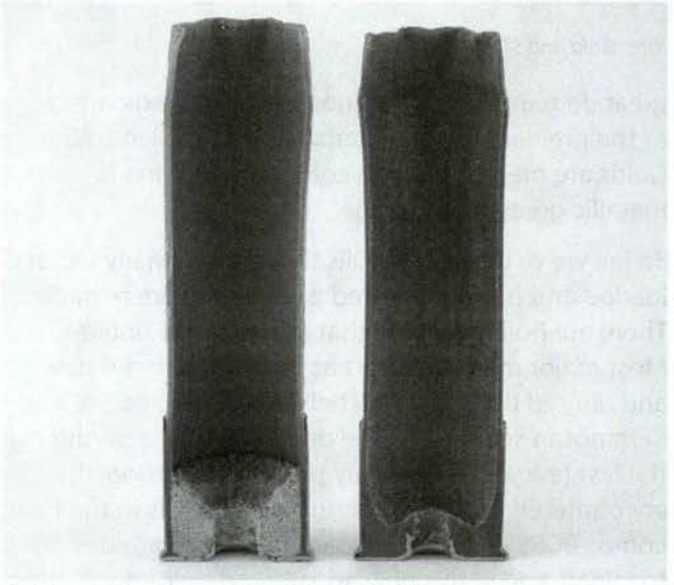
Federal's Gold Medal design is still current today and should be with us for a long time to come. In the fall of 1982, we began to encounter some of the Federal 12-gauge field loads that are made with the GOLD MEDAL type construction. This hull has a high brass-plated steel head, 6-point crimp and the mouth of the hull is unskived. Reloading data for this hull will be the same recipes as the GOLD MEDAL hull. The only change Federal has made in this hull, since its introduction, is changing to a smooth sided metallic maroon hull from a ribbed hull. This happened in 2000. Sample loads were given out to shooters in 5-paks at the Grand American Trapshoot in Vandalia, Ohio. A picture of the sample 5-pak is shown below.

During the same time, Remington quietly began introducing a UNIBODY type compression-formed hull in its field loads. It is of one-piece plastic construction with a brass-plated steel metal head. UNIBODY hulls

Smooth-Sided 5-pak of Federal Gold Medal Loads

will be encountered in both high and low brass and in green, blue and black colors. There is a difference, however slight, in the capacity of the discontinued RXP and the new UNIBODY hulls and reloading data should be chosen accordingly.

It was a slow phase-in process and it has not been without problems for handloaders. Remington's field line of ammo for the past 20 years or so was made by the German "Reifenhauser Process." This hull used a composition type base wad and a 57 or CCI 157 size primer. In the picture shown below an old style Remington hull with a composition (fiber) basewad made of sawdust and asbestos. A new style Unibody hull is shown along side for comparison.



Old Style "Fiber" Base Hull and Unibody Hull Comparison.

During this same period, handloaders generally became aware that Remington used a smaller diameter primer than everyone else. When these new UNIBODY hulls began showing up, it didn't take long for handloaders to find out their supply of the 57 primers wouldn't work—they fell out of the primer pocket. Why? Well, this new UNIBODY hull used the larger diameter 109 or 209 size primers. On top of that, the loading recipe changed, too. You see, this new compression-formed hull has more internal volume than the older poly-formed type with a fiber basewad.

Remington further advanced its UNIBODY line of hulls in the mid 1990's with the introduction of their STS (Sporting-Trap-Skeet) line of factory-loaded shotshells. The first introduction was named "Nitro 27" and consisted of a line of 12 gauge target loads. The name change to Nitro Gold was quickly followed by STS target shells in all gauges and .410 bore. These handsome loads were eagerly received, and are now in

Nitro Gold and STS Hulls

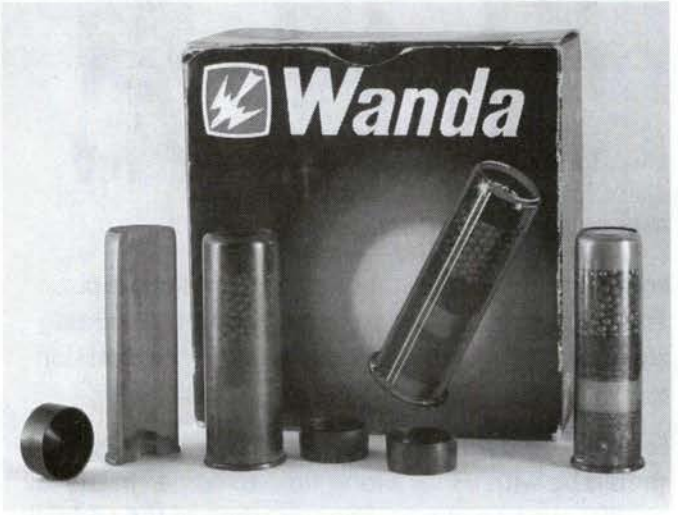
great demand, by target shooters and handloaders as their reloading characteristics are excellent. Nitro Golds are metallic gold in color. The STS line is metallic green in 12-gauge.

So far, we've discussed hulls that are originally factory loaded and have to be fired before they are reloaded. There are hulls available that are new and unfired. Most major manufacturers at one time offered new and unfired hulls for shotshell reloaders. Federal and Remington seem to be the only ones available during the last few years. The only problem occasionally encountered when reloading these hulls is in the final crimp. *RCBS* and other reloading presses are designed to reload, and in this new and unfired hull, handloaders will be performing a loading operation with a reloader. After a factory shell is fired, the crimp area of the hull will have a "memory" of the original crimp. We can determine by sight whether the original was a 6 or 8-point crimp, and we can set up our *RCBS* press accordingly. Sometimes when "loading" these new hulls we have to make some trial and error adjustments of our crimping die to get a good final crimp. After the shell is fired a couple of times, the crimp takes a "memory" and isn't any more trouble. As with any hull, always be certain of its identity and use the correct reloading recipe.

One-Piece Plastic Hulls

There have been some other manufacturers, both domestic and foreign, who have produced one-piece plastic shotgun shells in the last twenty years. Since we are not able to get reloading information from the powder manufacturers, we will cover these products only briefly.

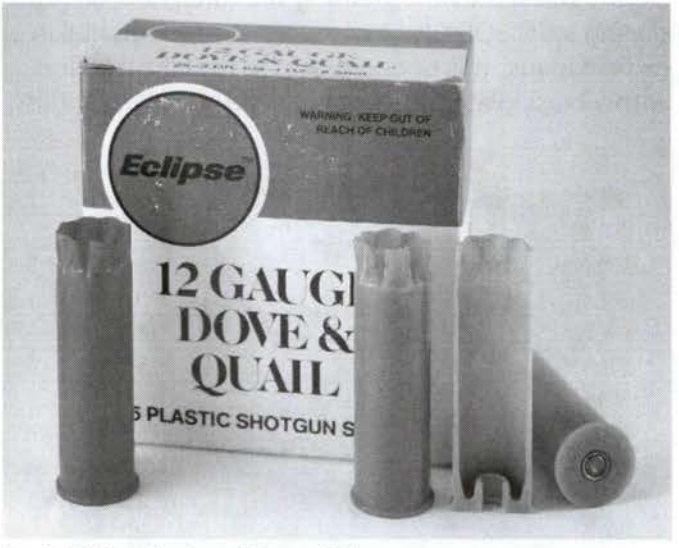
Wanda shotshells were manufactured for less than ten years. They were made by the injection molding process, using General Electric's LEXAN® in 12- and 20-gauge. Many people who should know say that the design and materials were good, and it was manufacturing quality control problems that resulted in Wanda's demise. The Wanda shell did not have the conventional folded crimp we are familiar with but rather a novel plastic over shot wad. Below are some of the Wanda shells and components.



Loaded Wanda Shells and Empty Hulls

A California company, Eclipse, manufactured a one-piece injection-molded plastic shotshell for a couple of years. Their first offerings were in trap and skeet 12-gauge loads. A field load followed in 20 round boxes rather than 25. According to the information that we have at this time, ONLY wads made by Eclipse should be used to reload their hulls.

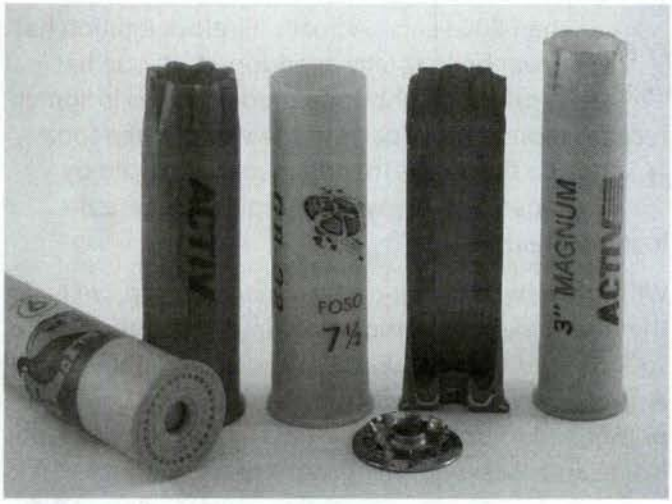
⚠ WARNING—IF YOU DON'T HAVE AN ECLIPSE RECIPE AND CORRECT ECLIPSE COMPONENTS, DO NOT RELOAD THESE HULLS!



Loaded Eclipse Shells and Empty Hulls

No reloading data is available from the powder manufacturers, and therefore, no recipes are included in this handbook. It is our understanding that Eclipse sold its production equipment to the Government of Venezuela in the mid 1980's.

A new and innovative all-plastic hull was introduced in the early 1980's. It was unique among hulls today. Named ACTIV, it is manufactured by the Reiwelin process, a process whereby the tube and head are

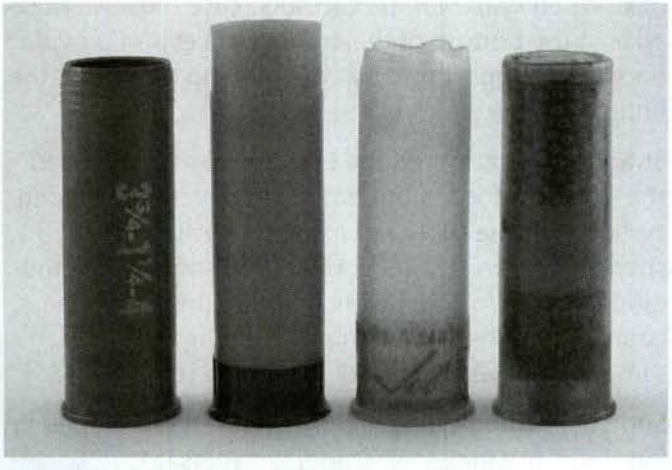


ACTIV Hulls and Steel Rim-Plate

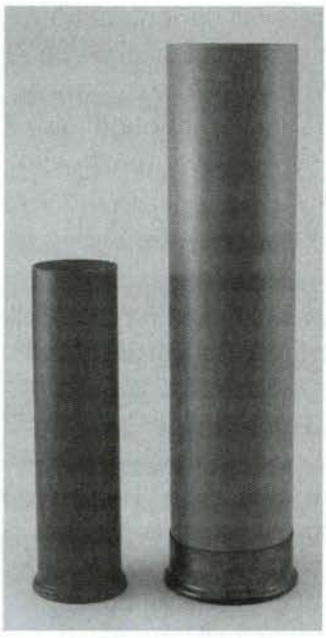
separately made then fused together forming a one-piece hull. The head encloses a perforated steel reinforcement plate, which prevents extractors ripping the hull rim and insures positive ejection. ACTIV products were discontinued in the late 1990's.

"Couger, when you have long shots to make, you'll need long bullets"

The only other one-piece plastic hulls that we are aware of are shown below. The HERTERS AND WHITNEY were available in this country starting in the 1960's. All experienced a short life and have been discontinued. The JET came from Mexico and the R. PINTO from Italy. There undoubtedly are others, and maybe we'll have information on these in a future edition.



Herters, Whitney, Jet and R. Pinto All-Plastic Hulls

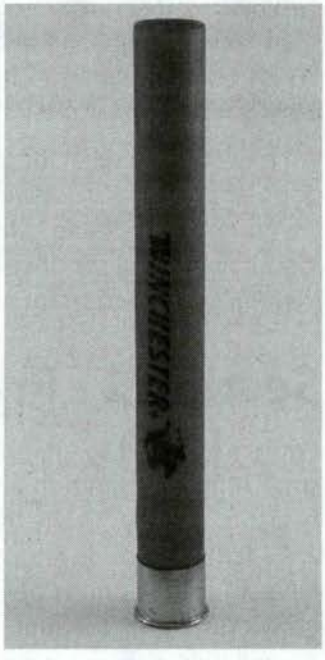


Lastly in this section is a picture of two exotic hulls handloaders are likely to never see and an interesting novelty load. One is an all-plastic hull of unknown origin in 6-gauge. The other is an Eley (made in Great Britain) paper tube 2-gauge primed hull. The 2-gauge is still available as a component for single shot punt guns that will weigh in at over 20 pounds.

All Plastic 6-gauge Hull and Eley 2-gauge Hull

The novelty load show below is given out to certain VIP's during Winchester Shotshell Facility plant tours. This dummy load is 6-3/4" long with a rolled crimp. An anonymous Winchester sales representative gave it to me at one of the World Skeet Shoots in San Antonio, TX. He looked me in the eyes and said, "Couger, when you have long shots to make, you'll need long bullets". I was dumbfounded having never seen anything like it. Since then, I've had a lot of fun with it.

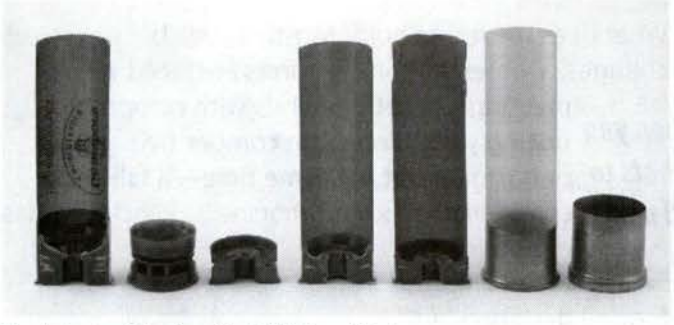
What does the future hold? Mostly subtle but improved changes. Domestic manufacturers are faced with meeting market demands with competitive pricing yet maintaining competitive performance at the same time—a tall order considering imported shotshells. Winchester has discontinued all of their compression formed designed hulls. Remington seems to be standardizing on compression formed tubes in certain gauges and loads. In the future, it is believed that Winchester will only support their HS designs for reloading purposes. According to a factory source, there will be more reloading data for HS designs in their next data brochure but data for their polyformed hull designs will be discontinued.



Winchester "Long-Range" Dummy Load

Foreign shotshell manufacturers will undoubtedly introduce more and different designs. Some will be reloadable—some will not. Several will be extremely low cost (includes promotional loads) although this price advantage will be changing in the future due to the cost of metals—primarily lead. We'll discuss more about component pricing in the primer and shot section of this chapter.

There is one, somewhat new, very interesting shotshell factory load available from Italy—Baschieri & Pellagri (B&P). According to Baschieri & Pellagri, a unique recoil-dampening hull is used. The design is called the Gordon System that features a shallow cone basewad that provides improved combustion of the powder charge. The collapsible basewad section both cushions the shot charge and reduces felt recoil to the shooter. The shotshell basewad is pre-shaped in height to match any volume of powder. This flexibility allows for a greater range of loadings from 24gm (a bit less than 7/8 oz) to 50gm (about 1-3/4 oz) and steel. Compared to domestic designs, the Gordon system is a somewhat complicated design thus more expensive. See the pictures below showing the basic construction of hull components and the different basewad heights.



Basic Parts of the Baschieri & Pellagri Design

We have discussed at length the history of more popular brands of shotshell hulls that have been and are currently available. More information on identifying these products is available in the case identification section found in Chapter 9.

Section 2 - Primers

Primers are used to ignite the propellant powders in small arms ammunition and are the initiators of all ballistics activity. In the history of firearms, primers are a fairly recent development. In the movies we have all seen cannons being fired by thrusting a glowing splinter, torch or other burning material into a small hole, called a "touch hole," in the barrel. Even today's "shooting lingo" has been influenced by historical events. When your buddy makes a good shot, have you ever heard someone else say, "He sure 'touched off' a good-un then." It probably wasn't a cannon that your buddy pulled the trigger on, but it all started when the primer was "touched off."

After touch holes there were wheel locks and flint locks. The latter produced a shower of sparks when the cock (hammer) holding a chip of flint was struck against a hardened piece of steel. This simple, inexpensive lock was used by soldiers, hunters and shooters for more than 200 years. Actually, flintlock ignition has never been totally abandoned. Its use has continued right up to modern times in some more remote parts of the world. Even today the flintlock is manufactured and used by those who enjoy shooting classic, muzzle-loading firearms.

In the history of firearms, primers are a fairly recent development

With the development of the percussion cap, we had the forerunner of our modern primers. But the sought-after ultimate was to make each round of ammunition a fixed, self-contained unit. To do this the primer had to be made a part of the cartridge. Various inside and outside priming systems were tried, most of which did not lend themselves to reloading or were of limited power due to inherent weaknesses.

Hiram Berdan, an American ordnance officer, developed a cartridge case with a pocket in the head to receive the percussion cap. In the bottom of this recess was a raised hump of metal called the anvil. When a firing pin struck the cap, the thin metal yielded inward and the priming mix was crushed against the anvil, causing ignition. One or more holes in the primer pocket admitted the flash of the priming mix into the powder charge.

In England, a Col. Edward M. Boxer employed a similar means of priming the cartridge. But in Col. Boxer's primer, the anvil was a small pointed piece of metal inserted into the percussion cap against the explosive mix. When seated in the cartridge case the anvil bore against the bottom of the primer pocket and provided necessary support to crush the priming mix under the firing pin blow.

Strangely, we adopted the English Boxer system and the English adopted the American-developed Berdan system. For the past century, virtually all centerfire sporting and military rifle, pistol and shotshell ammunition loaded for use by Britain and other European countries has been Berdan primed. For about the same period we have used Boxer type primers.

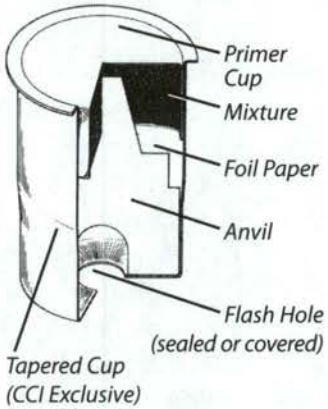
Shotshells using centerfire primers were developed in Europe in the mid-1850's, and, ten years later,

centerfire shotguns and ammunition were widely used. Developments in the United States came more slowly. While everyone is interested in better shotguns and ammunition, Americans were quite used to working with loose components in their muzzle-loading shotguns and had no intention of paying higher prices for the patented, "newfangled" factory-loaded ammunition. What the Mountain men and other Americans wanted were rugged cartridge cases that could be easily reloaded in the evening for tomorrow's shooting. The all-brass metallic shotshell was already in use and, with black-powder's low chamber pressure, good shotshell cases would last almost indefinitely. American hunters now had a combination that worked in any weather and allowed for easy reloading.

But there were two problems. First, the primers were corrosive and American sportsmen wanted to get away from black powder. Apparently, they were sick and tired of coming home from a day's shooting only to be faced with the endless chore of cleaning, drying and oiling their guns—sound familiar? Smokeless powder cured part of the problem and created another. Some of the new powder was hard to ignite. Black powder, on the other hand, was easy to ignite so the same primers were used in centerfire rifles, pistols and shotshells.

The problem of igniting the new smokeless powder was solved by using a larger primer with a larger priming charge. The shotshell's relatively soft paper, fiber or plastic basewad and thin brass head cannot provide the support and confinement necessary for the boxer-type primer used in metallic shotshells. Therefore, all modern shotshells use what is called a "battery cup" primer. The battery cup primer consists of a strong flanged cup, open at the end to accept a cap. The "cap" is identical to the cup of a metallic cartridge primer and it contains the explosive lead styphnate chemical pellet. Sandwiched vertically between the cap and battery cup is a flat, sheet metal anvil. A small hole is pierced in the lower end of the battery cup. This is the "flash hole" and most currently produced shotshell primers have a seal (lacquer or paper) applied to the flash hole to prevent powder granules from entering the cup.

Shotshell Primer



Tapered Cup (CCI Exclusive)

Battery Cup With Anvil in Place

Battery Cup

Anvil

Primer Cup

Powder manufacturers do not recommend using any primer with an open flash hole when reloading with Spherical or ball Powder. The finer granules of powder can enter the battery cup and cause an increase in pressure that can leak gas around the primer and enlarge the primer pocket.

⚠ WARNING—DO NOT USE PRIMERS WITH OPEN FLASH HOLES WHEN RELOADING SPHERICAL OR BALL POWDER AS THIS MAY CAUSE AN INCREASE IN PRESSURE WHICH CAN CAUSE DAMAGE TO YOUR WEAPON OR PERSONAL INJURY.

Primer With Sealed Flash Hole

Primer With Open Flash Hole

The three parts of the primer are pressed together and held by friction, with the anvil resting on the bottom of the battery cup and its other end pressing against the priming pellet. When the trigger is pulled, the firing pin strikes the primer cup, a portion of the cup is dented inward, forcing some of the primer mix against the point of the anvil to ignite it, and then the flash of hot flame blows through the flash hole seal to ignite the powder charge.

There have been two innovative designs in recent years. One is the Remington 209 Target shotshell primer. It's unique in that it doesn't have a standard flash hole—either one that is covered or uncovered. The short stubby primer is manufactured with a cone shaped cavity where the primer mix has a sealed coating. This design prevents Ball or Spherical powder from entering the battery cup and causing an increase in pressure that can leak gas around the primer and enlarge the primer pocket. The Remington 209 Target primer had a short market life since there were challenging problems feeding a short stubby primer through progressive reloaders. See the pictures above for the Remington 209 Target primer.

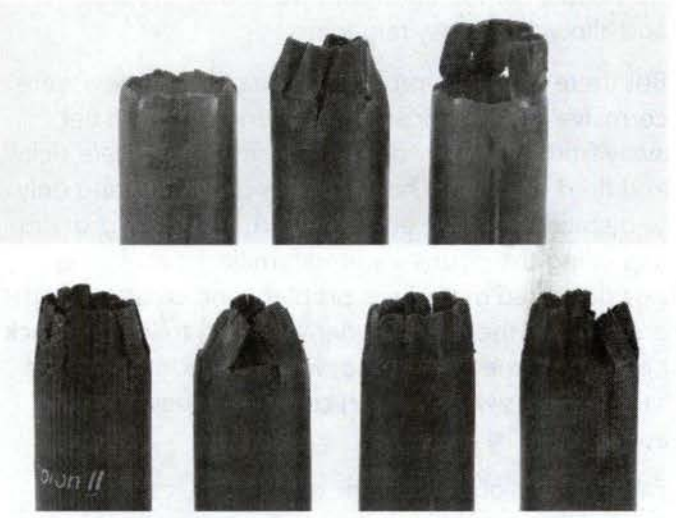
The chemists at ATK, have researched and developed a special primer mixture that overcomes shotshell ignition problems.

Remington 209 Target Shotshell Primer

In the 1980's, CCI experimented with a unique closed flash hole shotshell primer (the project was named "Trapdoor Shotshell Primer") although the finished primer never made it to the market as a component. The idea was since a flash hole had to be pierced in the battery cup, why not just make the cut partially around and leave a tab that kept the flap (trapdoor) closed on the battery cup until the reload was fired. Another savings would be to eliminate sealing the flash hole. When fired, pressure from the exploding pellet would blow the trapdoor open to ignite the powder. I personally reloaded a few hundred shotshells with this primer and didn't experience any problems. There was no reason that I remember of why the primer never went to market as a component.

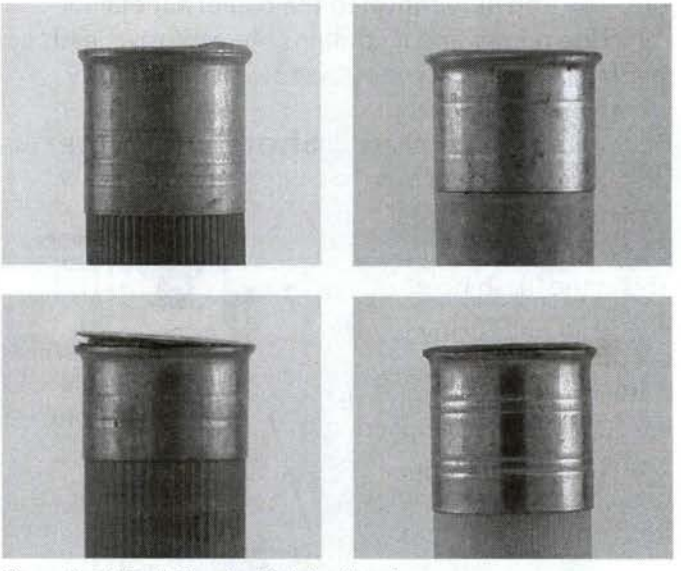
CCI Experimental 209 Shotshell Primer

Shotshell reloading presents some special ignition problems, primarily because of the changing characteristics of the mouth of the hull. Both the old paper and the modern plastic hulls become worn, split or otherwise weakened at the mouth with repeated crimping. Without a good crimp, handloaders will not have quality reloads. Anything less will reduce performance and/or cause other problems. Powder needs to be confined during ignition; this is exactly what a proper crimp accomplishes. If powder is not confined properly, it can result in muzzle flash, light recoil, low velocity and an off-note report. Hulls generally wear out on the crimp end. Some of the more popular 12-gauge hulls with worn-out crimps are pictured below.



Hulls With Worn-Out Crimps

The basewad (integral) and head of the hulls pictured above are also worn but nowhere near failing. A paper, composition or separate plastic basewad could have ruptured, from extensive reloading, and possibly would have blown out the rim of the metal head. See some examples of this in the picture below.



Blown Out Metal Rims And Bulging Heads

We could reload and crimp these hulls again but they would possibly open up during our hunt, leak the shot to the bottom of our game bag and go "PUFFFFFFF" if we mistakenly try to shoot them during the heat of a covey-rise. We are all guilty at one time or another of trying to get one more load out of our hulls and we have all heard our bud "Joe," who isn't a handloader, holler as loud as possible, for the whole world to hear, "YOU NEED TO PULL THE TRIGGER HARDER!"

⚠ WARNING—WHEN YOU HEAR AN "OFF NOTE" SOUND OR "BLOOPER", INSTEAD OF A NORMAL REPORT CHECK THE BORE OF YOUR SHOTGUN FOR A "LODGED" WAD. IF THERE IS A BARREL OBSTRUCTION, THE NEXT SHOT COULD CAUSE A BURST BARREL AND POSSIBLY SERIOUS INJURY. DON'T TAKE A CHANCE—CHECK YOUR BARREL!

Anyway, the new plastic hulls that have largely replaced the paper hulls are remarkably durable, but their useful life is not unlimited.

As previously mentioned, modern shotshell powders must have confinement for proper ignition (burning). The chemists at ATK, have researched and developed a special primer mixture that overcomes shotshell ignition problems. This mixture is composed of unique chemical ingredients that result in an extremely hot, yet soft, ignition. CCI and Federal shotshell primers are compounded with "basic" lead styphnate. All other manufacturers utilize a chemical mixture known as "normal" lead styphnate.

The Federal No. 209A Primer replaced the Federal 209. The No. 209A is particularly adaptable to a variety of powders. The basic lead styphnate mixture, a CCI and Federal exclusive, is non-mercuric, non-corrosive, and stable over extreme ranges of temperatures and humidity. Primers manufactured using the basic lead styphnate mixture provide instant, full, and dependable ignition with uniform ballistics. The close manufacturing control of primer pellet weight and all primer dimensions assures consistent sensitivity and performance. The package for all CCI and Federal 209A primers features a deeper plastic tray for added safety and easier handling.

Several different primer sizes, and brands, have been manufactured over the years. Old brass shotshells had a primer pocket identical to the ones used for rifle or handguns. This design required a primer very similar to ones used for metallic cases. Remington and Peters, at one time, used a smaller primer than Winchester and Federal. This obsolete size was called a 57 (star) or 157, or simply a Remington size. Today however, all U.S. and foreign made shells take the standard size 209. The nominal Diameter for all 209-size shotshell primers in Inches is 0.243. In the picture below a sampling of several 100-count boxes are shown dating back to the 1960's. Just a few months ago, I reloaded some shotshells using primers that were approximately 50 years old. All fired and broken clay birds resulted—at least when I did my part.

Boxes of Old Shotshell Primers

⚠ WARNING—DO NOT INTERCHANGE DIFFERENT BRANDS OF PRIMERS. USE THE COMPONENTS IN THE LOADING RECIPE EXACTLY. FAILURE TO DO SO, MAY RESULT IN HAND-LOADS WITH UNSAFE PRESSURES THAT COULD CAUSE PERSONAL INJURY OR PROPERTY DAMAGE

⚠ CAUTION—FIOCCHI AND CHEDDITE FACTORY SHOTSHELL AMMUNITION AND COMPONENT HULLS ARE LOADED WITH FIOCCHI 616 AND CHEDDITE PRIMERS. THESE PRIMERS ARE SOMEWHAT LARGER NEAR THE RIM AS COMPARED TO DOMESTIC 209 SIZE PRIMERS. HANDLOADERS WILL BE BEST SERVED TO RELOAD FIOCCHI HULLS WITH FIOCCHI 616 PRIMERS AND CHEDDITE HULLS WITH CHEDDITE PRIMERS, AS DOMESTIC SHOTSHELL PRIMERS TEND TO FIT LOOSELY IF USED AS A COMPONENT WHEN RELOADING THESE HULLS. HANDLOADERS SHOULD BE AWARE THAT USING FIOCCHI OR CHEDDITE PRIMERS IN DOMESTIC MANUFACTURED HULLS, A SWAGING (STRETCHING) OF THE PRIMER POCKET COULD RESULT. THEN DOMESTIC MANUFACTURED PRIMERS MAY FIT LOOSELY IF USED.

The following information is extremely important to all reloaders. *Sporting Ammunition Primers: Properties, Handling, & Storage for Handloading* is published by the Sporting Arms and Ammunitions Manufacturers' Institute (SAAMI). It is reprinted here with the permission of SAAMI, whose cooperation in providing this material is greatly appreciated.

Sporting Ammunition Primers *Properties, Handling & Storage for Handloading*

This leaflet has been prepared by the Sporting Arms and Ammunition Manufacturers' Institute based upon information currently available to it, this information is furnished to interested persons as a courtesy and in the

interests of safety. It is not intended to be comprehensive; it does not modify or replace safety suggestions, standards, or regulations made by designated authorities, public or private. It is subject to revisions as additional knowledge and experience are gained. SAAMI expressly disclaims any warranty, obligation, or liability whatsoever in connection with the information contained herein or its use.

Ammunition handloading has become increasingly popular in recent years. This information summarizes information that is generally known by an experienced handloader, and provides general information to persons interested in handloading. It discusses the properties of sporting ammunition primers and offers recommendations for their safe use, handling and storage.

This information is intended only to increase the knowledge of all concerned individuals and groups regarding sporting ammunition primers. The statements made do not supersede local, state or Federal regulations. Proper authorities should be consulted on regulations for storage, transportation, and use of sporting ammunition primers in each specific community. Other information on smokeless powder and sporting ammunition are available.

Properties of Primers

Sporting ammunition primers contain carefully engineered mixtures of chemical ingredients. Primers are designed to explode and produce the heat, gas and hot particles necessary to ignite the propellant powders in sporting ammunition when the firing pin of a firearm strikes them properly.

Properties of particular importance to the dealer and user of primers are as follows:

1. ***Primers may explode if subjected to mishandling. Explosions may be caused by friction and by percussion, such as hammering, pounding, dropping or bullet impact. Heating by fire, static electricity sparks, hot tobacco ashes, or other unspecified abuses might also cause primers to explode.***
2. ***If primers are loose or in bulk, having contact one with another, one primer exploding can, and usually will, cause a violent, sympathetic explosion of all primers so situated. In other words, one primer exploding for any reason under these circumstances will normally cause all of the primers to explode in one violent blast.***
3. ***Primers may "dust." Small particles of priming compound may separate from the primers in the form of dust, especially when they are subjected to shaking or jolting. Accumulation of this dust in primer feed tubes, loading machines, and loading areas is extremely hazardous as it might cause explosions or fires.***
4. ***Primers exposed to water or any organic solvent, such as paint thinner, gasoline, kerosene, oil, grease, etc. may deteriorate, resulting in misfires or poor ignition.***
5. ***Modern sporting ammunition primers will not absorb moisture under normal or even severe conditions of atmospheric humidity. There is no advantage to be gained from airtight containers. The factory containers in which they are packaged need only normal conditions of storage. They should be kept dry and not exposed to high temperatures (in excess of 150(F). If exposed to wet conditions or high temperatures, they may deteriorate, yielding misfires or poor ignition of the propellant powder.***

Handling of Primers

Primers do explode. *They have been designed for this purpose. They demand the respect and careful handling due any device containing explosives.*

Sporting Ammunition and the Firefighter, a video produced by the Sporting Arms and Ammunition Manufacturers' Institute, analyzes the characteristics associated with small arms ammunition when it is subjected to severe impact and fire. When a primer ignites, it causes the propellant to burn, which creates gases which, when under pressure in a firearm, send the bullet down the barrel. Pressure created by the propellant being burned is what discharges a bullet. As such, loose ammunition in a fire does not result in bullets being discharged because the propellant is not burning under pressure. The video, which has been widely circulated to fire departments, concludes that while ammunition produces a popping sound when it burns, there is no mass detonation of the ammunition, any projectiles are of low velocity, and there is no threat to firefighters in their standard turn-out gear.

Primers should never be handled, used, or stored in bulk, since primers in bulk can explode simultaneously. The placing of primers in tubes or columns, or using other bulk systems in which the explosion of any one primer may cause the explosion of all others, is a potentially hazardous condition. The manufacturers of primers do not recommend the use of primer feeds for reloading unless adequate protection from the hazard of explosion is provided. It is the responsibility of the manufacturers of primer handling systems to provide safety and protective features for their equipment. It is recommended that

primers be handled individually unless adequate safeguards are provided and used.

Care must always be exercised in any handloading operation to avoid rough handling and undue force where a primer is involved, since the primer may fire. Any malfunction of equipment must be cleared with extreme caution. The decapping of shells or cases containing live primers is to be avoided.

Precautions should be taken to avoid buildup of static electricity on the person when handling primers or conducting handloading procedures. Loading equipment should be electrically grounded.

All loading equipment and adjacent areas must be kept scrupulously clean and free of primer dust and powder accumulations. Work areas and loading equipment must be cleaned by wiping with a damp cloth or sponge, which should be thoroughly rinsed after each use. Fired primers, primer cups, anvils, or other bits of hard, abrasive material are a hazard during loading operation as contact with them may cause primers to fire.

Primers should never be handled, used, or stored in bulk, since primers in bulk can explode simultaneously.

Accidentally spilled primers should be picked up immediately as they may explode when stepped on.

An absolute minimum of primers should be maintained at the loading operation. Only one packing tray at a time should be removed from the primer storage.

When a priming operation is completed, any remaining primers should be returned to the package in which they were originally contained. These packages have been specifically designed to protect primers during shipment and storage and to protect the consumer.

Primers available to children, household pets, or persons not recognizing them as potentially hazardous, are an unnecessary risk to all concerned.

Never have an open flame, source of sparks, or hot particles in the vicinity of primers or any ammunition loading operation.

Do not smoke near primers.

Safety glasses must be worn when performing any and all handloading operations. Additional protection such as face shields or machine guards are strongly recommended.

Recommended Storage of Primers

Storage cabinets containing only primers are recommended. These cabinets should be ruggedly constructed of lumber at least 1" nominal thickness to delay or minimize the transmission of heat in the event of fire. SAAMI recommends against storing primers in sealed or pressurized containers.

Keep your storage and use area clean. Make sure the surrounding area is free of trash or other readily combustible materials.

Be sure your storage area is free from any possible sources of excessive heat and is isolated from open flame, furnaces, water heaters, etc. Do not store primers where they can be exposed to direct sunlight. Avoid storage in areas where mechanical or electrical equipment is in operation.

Do not store primers in the same area with solvents, flammable gases, or highly combustible materials. Store primers only in their original factory containers. Do not transfer the primers from this approved container into one that is not approved. The use of glass bottles, fruit jars, plastic or metal containers, or other bulk containers for primer storage are extremely hazardous.

Do not smoke in areas where primers are stored. Place appropriate "No Smoking" signs in these areas.

Do not store primers in any area where they might be exposed to gunfire, bullet impact, or ricochets.

Do not store primers with propellant powders or any other highly combustible materials to avoid involving primers in a fire as much as possible.

Observe all regulations regarding quantity and methods of storing primers.

Other Factors Influencing Primer Performance

In addition to the problem of misfires, several common occurrences can hinder proper primer ignition. Before putting the blame on the primer for the misfire, make the following checks:

1. **Did the shotgun deliver an adequate firing pin blow? Is the firing pin tip hemispherical and not flat or chipped?**
2. **Was the primer free from contamination such as oil or grease?**
3. **Had the hull been damp or wet prior to reloading?**
4. **Is the firing pin strike reasonably well centered on the primer?**
5. **Was there powder in the case?**
6. **Had the primer been fired previously and not deprimed?**

Even experienced, careful reloaders will slip up and overlook these last two important reloading steps.

Proper firing pin fall can be hindered when too much fouling is allowed to accumulate in the percussion mechanism of the gun. More frequent cleaning is the simple cure. Oil or grease in the percussion mechanism can congeal in very cold weather. This can greatly reduce the speed of firing pin fall and, in extreme cases, prevent it.

Off-center firing pin strikes account for a share of misfires. In order to effect proper ignition, the firing pin must strike very near to the center of the primer cup since the point of the anvil lies under this portion. Some eccentricity can be tolerated if the firing pin delivers a firm, solid blow to the primer. Nevertheless, in cases where the firing pin blow tends to be both light and off center, sooner or later a shooter is certain to experience a misfire. Unless appropriate corrective action is taken, more may occur.

Contamination is another cause of primer failures. A quantity of oil, grease or solvents too small to detect is enough to render a primer inert if it gets into the primer pellet. In recent years, some aerosol lubricants have appeared on the market. Used as intended, they are excellent products for lubricating and preventing rust of firearms and have great penetrating qualities. This feature can be a disadvantage if the lube gets on ammunition. It will easily penetrate the case around the primer and contaminate the pellet and/or powder, rendering them inert. Lubricants MUST be kept away from ammunition. When sprayed on a firearm or reloader in routine maintenance, all excess must be carefully wiped off before use. Oil is the arch-enemy of all primers. Make sure no oil is on your fingers when handling them. Never use oil on the automatic primer feed mechanism of the reloader. Use dry graphite if lubrication becomes necessary.

Remember, different primers have different characteristics depending on their purpose. Use the exact primer that is shown in the reloading recipe. If you want chocolate cake...

Section 3 - Powder

History—The first discovery of a fuel that would burn without atmospheric oxygen was a mixture of charcoal, sulfur and niter (potassium nitrate or saltpeter). This invention has been credited to the Chinese and was used by them hundreds of years ago.

Two basic types of powder are in use today. They are designated as black powder and smokeless powder. Black powder is a low explosive and can be ignited by shock from a sudden jar. Remember in the cowboy movies that a keg of black powder, when thrown over the cliff, exploded! Smokeless powder is not an explosive. It is classified as a combustible propellant, which means it is a chemical mixture designed to burn under controlled conditions, and to propel a shot charge or projectile. It is extremely difficult to ignite smokeless powder by shock. If our cowboy threw a keg of smokeless powder over the cliff, depending on the brand, the keg most likely breaks, spilling powder all over the canyon floor. The grass would be green there in years to come because smokeless powder, with its high nitrogen content, is a good fertilizer.

Alfred Nobel, a Swedish chemist, invented double based powders.

Smokeless powders were invented in Europe in the late 1800's and were first used there. A French chemist named Vieille is credited with the discovery of a process that became single base powder. A few years later Alfred Nobel, a Swedish chemist, invented double based powders. Nobel made a huge fortune from his discovery and, apparently appalled at the thought of what he had invented, left his fortune to benefit mankind by what we know today as the Nobel Prizes.

Smokeless powder has two advantages:

1. Heavy bore residue and smoke of black powder is eliminated.
2. Smokeless powder has more energy than black powder and ballistics were substantially improved.

Probably no one enjoys cleaning his or her firearms but cleaning black powder residue is a real chore. Although black powder is man's oldest explosive and gunpowder, it is not only still in use today, but flourishing among shooters of muzzle loading firearms. PYRODEX, a replica black powder produced and marketed by The Hodgdon Powder Company, has solved the explosive and residue problem but left the smoke for tradition.

Time was, however, when the smoke was a pain. A bird hunter had to step around the smoke cloud to see if his shot were true. If it wasn't, he had no idea if it went high or low. Soldiers had a worse problem. Can you imagine fighting a battle through a cloud of smoke? How about a Native American, with intentions of "lifting your hair," making an instant appearance from a cloud of smoke. Muzzle loading is kinda fun now, but for Davy and Daniel it was not only a pain but very serious business. Yes sir! Smokeless powder solved many problems.

The biggest problem of modern day handloaders happened during and right after World War II. Not only powder, but also reloading components of every kind became almost impossible to obtain. The war effort required the combined production of all ammunition manufacturers and the supply of powders and other reloading components had not resumed. During that time, manufacturers preferred to apply their total effort to the production of factory loaded sporting ammunition. Policies changed after the war. "This is modern day," the manufacturers said. "Reloading is dangerous—no one reloads today, here, use these factory ready-rolls."

Thankfully, for all handloaders then and to come, a few men bowed their back and went against the grain of the manufacturers. In 1946, one of these men, Bruce Hodgdon, of Merriam, Kansas, began marketing military surplus powders, a step that had a very important and lasting effect on handloading. The excellent quality and moderately priced Hodgdon powders enabled many individuals to resume handloading and many others to take it up for the first time. All handloaders of yesterday, today and tomorrow owe Mr. Hodgdon a great deal of thanks and support.

Types and Composition—The modern smokeless powder available today is neither smokeless nor powder. Gunpowder, by definition, is an explosive. If you don't believe it, look up what Mr. Webster has to say about gunpowder. And smokeless it is when compared to black powder, but a little, thin, white puff is still there every time we pull the trigger. We will, however, refer to our modern "combustible propellant" as smokeless powder.

There are three types of smokeless powder: Spherical or ball, flake, and tubular or extruded.

Powders that use nitrocellulose as an energy source are called "single base" powders. When nitroglycerin is added to the nitrocellulose for a higher energy content we then have "double base" powders. Both have advantages and disadvantages. Double base powders have a long shelf life and higher energy content per unit volume. Single base powders are less temperamental at high-pressure levels and will not attack the plastic hoppers in powder measures, as will double base powders.

Spherical or ball powder was developed by using left over quantities of WW I cannon powder as raw material for new propellant.

Spherical or ball Powder

Flake Powder

Tubular or Extruded Powder

There are three advantages for handloaders to use Spherical or Ball powder:

1. It goes through a powder bushing uniformly and smoothly.
2. Its density permits loading more energy per unit volume than other powders.
3. It has a low rate of bore erosion.

All Alliant, Hodgdon (Spherical powders) and Winchester powders are double base. All IMR powders, with the exception of HI-SKOR 700X and 800X, are single base.

Burning Rates—Powder is the least variable of all reloading components. Trying to use one powder to reload shotshells, pistols and rifle ammo is like planting one kind of seed to grow all kinds of vegetables. There may be one or two combinations that would be adequate but optimum loads, generally, couldn't be worked up. However, powder can be made to fit any combination of guns and ammunition by controlling the shape, size, porosity and density of the granules as well as its chemical composition. Burning rate is controlled by the size of the granules and by the amount of surface exposed. The greater the surface, the faster it will burn. Take a log of wood, for example, and cut it all up in kindling. The kindling will burn much faster than the log would have if left whole.

For proper storage, powder should be kept in the manufacturer's original container, tightly closed, in a cool, dry location.

The same thing happens with smokeless powder. If the granules are perforated, the burning rate is increased. The outside surface is ignited at the same time that the inside surface begins to burn. The outside surface area burns smaller as the inside surface area increases. Therefore, the surface burning area remains about the same in size until the granule is burned out. The size and number of perforations can increase in area as burning proceeds. A powder that will build pressure rapidly, start the projectile moving, and then maintain that pressure all the way to the muzzle is called "progressive" burning powder.

As a spherical or ball granule burns from the outside it gets smaller and smaller and the amount of gas given off is less because of the reduced surface area. This is called "digressive" burning powder. To achieve specified burning characteristics, the burning rate of Spherical or ball powder can be controlled during manufacturing by rolling the granules into little flats like pancakes. They can be rolled thick or thin or left in a spherical shape. Spherical and ball powder is coated to retard burning. This is done by treating the granule's surface with a deterrent, which slows the rate of burning until the coating is burned through. Most powders are tumbled in graphite prior to packaging. This also has some deterrent effect, but graphiting primarily improves the flow of powder in measuring and carries off static electricity charges. It is interesting to note that the color of powder varies from white to greenish to straw yellow prior to the application of deterrents and graphite. The finished gray color is mostly due to the graphite.

Lot Uniformity—The term "canistered" is used to describe a powder that is sold at retail for reloading. Powder is made in batches called "lots." Every canister (container) has a lot number written somewhere on the container. This practice assures that canister lots for reloading are the same yesterday, today and tomorrow.

Identification—Many powders look alike but their burning rates are different. Identification cannot be made by visual inspection. If a question of identity arises, the powder should be discarded. The only reliable identification is the label on the can and nothing can be learned (uses, burning rate, etc.) about the powder by its name or number alone. Alliant powders even have a few colored flakes mixed in for identification. Still, it must be regarded as impossible to identify any powder by appearance alone. There is only one thing to do with canisters that are unlabeled or illegible—DISCARD THAT CANISTER OF POWDER. Do not purchase any powder unless it is in the manufacturer's original container.

Storage and Storage Life—Smokeless powders, correctly stored, have a very long life; even several decades if kept cool. Spherical and ball powder are usually considered to have a much longer shelf life than other types. It is known, however, that a facility in Virginia has some flake propellant, stored under water since the late 1800's, that burns as if it were a recent lot when it is dried out. For proper storage, powder should be kept in the manufacturer's original container, tightly closed, in a cool, dry location. Powder should never be transferred to glass or plastic jars, as light will speed-up deterioration. The storage and use of powder is safer than handling gasoline, solvents, fingernail polish remover, aerosols or even lighter fluid.

Powder should be kept in a locked wooden box or cabinet, out of the reach of children and away from open flame, furnaces, hot water heaters and other electrical or mechanical equipment. A fire extinguisher should be kept at each location where powder is stored, including on the loading bench itself.

Powder canisters (containers) are designed to yield before pressure inside can rise to a dangerous level. If you were to place a filled canister of powder in a fire, the container would soon split open and the powder would burn but not explode. This writer has had the dubious pleasure of seeing the aftermath of a 40-foot truckload of powder shortly after a wreck with another truck and a resultant fire. THERE WAS NO EXPLOSION! Not all of the powder burned, either. There were several cases of an extremely fast-burning pistol powder that didn't catch fire at all although most of the trailer was a melted blob of aluminum!

The proper storage and handling of powder is necessary for every handloader. More than one person has had an accident due to ignoring or being uninformed about the safety aspects of handling canister powder.

The following information is extremely important to all handloaders. Reloading Safety is published by Alliant Powder Company, Inc. It is reprinted here with the permission of Alliant, whose cooperation in providing this material is greatly appreciated.

Reloading Safety

Part of the responsibility of being a handloader includes the safe handling, storage and use of gunpowder. It is vital that you practice all the recommended precautions before, during and after the use of our products. Below are some of the methods we advise you follow when handling gunpowder.

Storage

Ammunition handloading has become increasingly popular in recent years. This page discusses properties of smokeless powder and offers recommendations for its storage. This information is intended to increase the knowledge of all concerned individuals and groups regarding smokeless powder.

The statements and recommendations made are not intended to supersede local, state, or Federal regulations. Proper authorities should be consulted on regulations for storage and use of smokeless powder in each specific community.

A leaflet entitled "Sporting Ammunition Primers: Properties, Handling, & Storage for Hand Loading" supplements this information on smokeless powder and is available from SAAMI (Sporting Arms and Ammunitions Manufacturers' Institute, Inc). Flintlock Ridge Office Center, 11 Mile Hill Road, Newtown, CT 06470-2359. (Editor's Note, The leaflet includes detailed information on the following subjects.)

- **Properties of Smokeless Powder from SAAMI**
- **How to Check Smokeless Powder For Deterioration**
- **Considerations for Storage of Smokeless Powder**
- **Recommendations for Storage of Smokeless Powder**

Properties of Smokeless Powders

Smokeless powders, or propellants, are essentially mixtures of chemicals designed to burn under controlled conditions at the proper rate to propel a projectile from a gun.

Smokeless powders are made in three forms:

1) Thin, circular flakes or wafers

2) Small cylinders, both perforated and unperforated

3) Small spheres or flattened spheres

Single-base smokeless powders derive their main source of energy from nitrocellulose.

The energy released from double-base smokeless powders is derived from both nitrocellulose and nitroglycerin.

All smokeless powders are extremely flammable; by design, they are intended to burn rapidly and vigorously when ignited.

Oxygen from the air is not necessary for the combustion of smokeless powders since they contain sufficient built-in oxygen to burn completely, even in an enclosed space such as the chamber of a firearm.

Ignition occurs when the powder granules are heated above their ignition temperature. This can occur by exposing powder to:

1) A flame such as a match or primer flash.

2) An electrical spark or the sparks from welding, grinding, etc.

3) Heat from an electric hot plate or a fire directed against or near a closed container even if the powder itself is not exposed to the flame.

When smokeless powder burns, a great deal of gas at high temperature is formed. If the powder is confined, this gas will create pressure in the surrounding structure. The rate of gas generation is such, however, that the pressure can be kept at a low level if sufficient space is available or if the gas can escape.

In this respect smokeless powder differs from blasting agents or high explosives such as dynamite or blasting gelatin, although powder may contain chemical ingredients common to both these products.

Smokeless powder does not detonate like high explosives as it has a controlled rate of burn and differs considerably in its burning characteristics from common "black powder". Black powder burns at essentially the same rate out in the open (unconfined) as when in a gun.

When ignited in an unconfined state, smokeless powder burns inefficiently with an orange-colored flame. It may produce a considerable amount of light brown, noxious smelling smoke. It leaves a residue of ash and partially burned powder. The flame is hot enough to cause severe burns.

When it burns under pressure, as in a cartridge fired in a gun, smokeless powder produces very little smoke, a small glow and leaves very little or no residue. The burning rate of smokeless powder increases with increased pressure.

If burning smokeless powder is confined, gas pressure will rise and eventually can cause the container to burst. Under such circumstances, the bursting of a strong container creates effects similar to an explosion.

For this reason, the U.S. Department of Transportation (formerly Interstate Commerce Commission) sets requirements for shipping containers for propellants and requires tests of loaded containers under actual fire conditions before approving them for use.

When smokeless powder in DOT-approved containers is ignited during such tests, the container seams split open or lids pop off to release gasses and powder from confinement at low pressure. Additional details are available in a SAAMI video "Smokeless Powder and the Fire Service".

How to Check Smokeless Powder for Deterioration

Although modern smokeless powders contain stabilizers and are basically free from deterioration under proper storage conditions, safe practices require a recognition of the signs of deterioration and its possible effects.

Deteriorating smokeless powders produce an acidic odor and may produce a reddish brown fume. (Don't confuse this with common solvent odors such as alcohol, ether, and acetone.)

Dispose of deteriorating smokeless powders immediately. Check to make certain that smokeless powder is not exposed to extreme heat as this may cause deterioration. Such exposure produces an acidity which accelerates further reaction and has been known, because heat generated by the reaction, to cause spontaneous combustion.

Never salvage powder from old cartridges and do not attempt to blend salvaged powder with new powder or attempt to blend two types of powder to make a "custom" blend. Don't accumulate old powder stocks.

Considerations for Storage of Smokeless Powder

Smokeless powder is intended to function by burning, so it must be protected against accidental exposure to flame, sparks or high temperatures.

For these reasons, storage enclosures should be made of insulating materials to protect the powder from external heat sources.

Once smokeless powder begins to burn, it will continue to burn (and generate gas pressure) until it is consumed.

only the smallest practical quantities of smokeless powder should be kept in storage

D.O.T. approved containers are constructed to open up at low internal pressures to avoid the effects normally produced by the rupture or bursting of strong containers.

Storage enclosures for smokeless powder should be constructed in a similar manner:

1. *Of fire-resistant and heat-insulating materials to protect contents from external heat.*
2. *Sufficiently loose to satisfactorily vent the gaseous products of combustion satisfactorily which would result if the quantity of smokeless powder within the enclosure accidentally, ignited.*

If a small, tightly enclosed storage enclosure is loaded to capacity with containers of smokeless powder, the walls of the enclosure will expand or move outwards to release the gas pressure - if the smokeless powder in storage is accidentally ignited.

Under such conditions, the effects of the release of gas pressure are similar or identical to the effects produced by an explosion.

Therefore, storage of smokeless powder should be in strict compliance with all applicable regulations and recommendations of the National Fire Protection Association.

Recommendations for Storage of Smokeless Powder

Store in a cool, dry place. Be sure the storage area selected is free from any possible sources of excess heat and is isolated from open flame, furnaces, hot water heaters, etc. Do not store smokeless powder where it will be exposed to the sun's rays. Avoid storage in areas where mechanical or electrical equipment is in operation. Restrict from the storage areas heat or sparks which may result from improper, defective or overloaded electrical circuits.

Do not store smokeless powder in the same area with solvents, Flammable gases or highly combustible materials. Store only in department of transportation approved containers. Do not transfer the smokeless

powder from an approved container into one which is not approved

Do not smoke in areas where powder is stored or used. Place appropriate "No Smoking" signs in these areas.

Do not subject the storage cabinets to close confinement.

Storage cabinets should be constructed of insulating materials and with a weak wall, seams or joints to provide an easy means of self-venting.

Do not keep old or salvaged powders. Check old powders for deterioration regularly. Destroy deteriorated powders immediately.

Obey all regulations regarding quantity and methods of storing. Do not store all your smokeless powders in one place. If you can, maintain separate storage locations. Many small containers are safer than one large container.

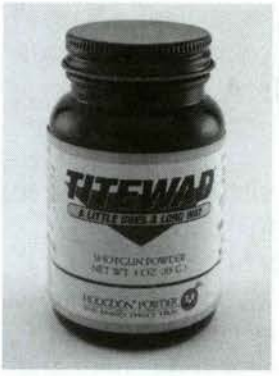
Keep your storage and use area clean. Clean up spilled smokeless powder promptly. Make sure the surrounding area is free of trash or other readily combustible materials.

Information regarding the Standard for the Manufacture, Transportation, Storage and Use of Explosive Materials (Publication Standard NFPA495-85), is available form The National Fire Protection Association, Quincy, MA 02269.

Selection—I have often been asked questions as to whether a certain powder is either clean or dirty burning. There are some powders that burn "cleaner" than others do, but none burn as dirty as black powder. Generally, all slow-burning powders leave an ash residue in the barrel. This residue does not result from incomplete combustion, but is a by-product of the deterrent coatings used to regulate burning speed. The ash does not accumulate and there is no more after 100 shots than there was from the first.

Some twenty or thirty years ago, Bruce Hodgdon told the story of a trap shooter who had broken 100 straight at the Grand American Trapshoot. Seems that this feller was complaining about dirty burning powder. Mr. Hodgdon ask him if he wanted to break clay pigeons or come home with a clean barrel... Of course, he wanted to break the clay birds. Anyway, a few patches soaked in OUTERS BORE SOLVENT will remove the residue during cleaning.

When a new powder is introduced by one of the manufacturers, samples are provided to certain groups of handloaders. Such was the case when Hodgdon introduced "TiteWad" at a Grand American Trapshoot a few years ago. This particular sample is three ounces and a picture of the small sample bottle is shown here. On the label was the caption, "Sample Only, Not For Resale."



Three Ounce Sample of Hodgdon TiteWad Powder

Depending on whom you talk to powder selection is easy, difficult, confusing or almost impossible. At this writing, there are more than a hundred propellants currently available on the retail market and the most difficult question for the would-be handloader is determining which powder to use in a given load. A large number are designed specifically for shotshells. There are also many handgun powders that can be used. The answer is simple—use reliable data from the powder manufacturers and follow the recipe of your choice. We'll discuss this more in detail later in this handbook. Consideration of all these powders should impress any thoughtful handloader. We're all fortunate to have these choices. The recreational hobby of Handloading is alive and well in this country today. It is interesting to know that handloaders consume more than 4 million pounds of canister powder a year in this country. That is a lot (no pun intended) of powder.

Below is an announcement of significance to all handloaders dated January 30, 2006:

Winchester signs license agreement with Hodgdon Powder Company

Winchester Ammunition and Hodgdon Powder Company, two great names in reloading, are proud to announce a license agreement that is sure to excite every handloader. Winchester branded reloading powders will now be licensed to Hodgdon Powder Company. Hodgdon Powder Company is the industry leader in supplying reloading powders. This partnership positions Winchester brand powders to best support the Handloading customers' needs.

You will still be able to find your favorite Winchester powder, from 231 to Super Target, with the consistent supply and support you are accustomed to from Hodgdon Powder Company.

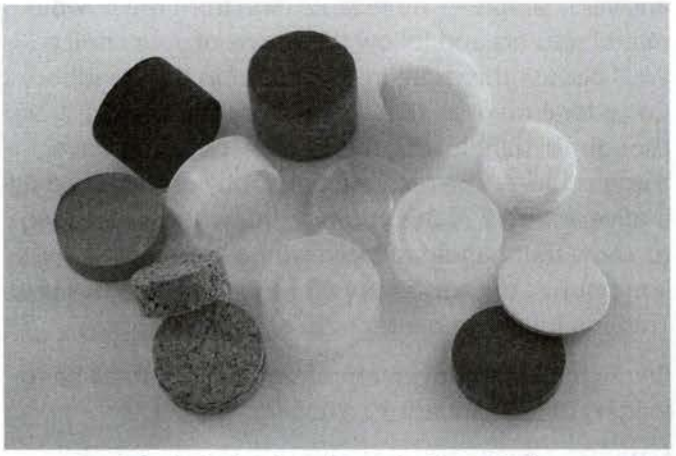
After a brief transition period, Hodgdon Powder Company will assume responsibility for all orders, shipments, customer and technical service, including loading data for all Winchester branded reloading powders. Winchester Ammunition will continue to be your full line provider of world-class ammunition and reloading components.

For further information on Winchester branded powders, please visit www.winchester.com or www.hodgdon.com on the Internet.

Section 4 - Wads

Selecting The Right Wad: A Wad Is A Wad, Is A Wad—Or Is It?

The wad is that part of the shotshell that goes between the powder and shot. Not too long ago wads were made of paper, cork, felt and other materials. Prior to the plastic wads we have today, felt and paper were the materials that were most widely used. Felt was readily available in varying thickness' and gauges and was used as "filler wads." Compressed paper "nitro cards" were used between the filler wads and powder and maybe over the shot.



Various Nitro Cards, Cork, Felt and Specialty Plastic Wads

Thanks to Ballistic Products Company for providing the above pictured samples.

Then along came the age of plastic, and wads changed for the better. Essentially a modern one-piece plastic wad consists of three parts:

1) A molded cup serves to contain and seal the gas pressure developed by the burning powder. This sealing is called "obturation."
2) Above this cup, different types of ribs, posts and arch supports are formed to act as springs or a cushioning section to give a more gentle cushion during the acceleration of the shot charge at ignition.
3) The upper section is a shot cup with a series of vertical slits. The cup protects the shot charge from rubbing against the bore and pellet deformation is drastically reduced. The slits in the cup allow cup petals to peel back as the shot leaves the muzzle and not interfere with the shot string. Shot cups also eliminate barrel leading, improve patterns and prolong the life of the hull.

There are literally hundreds of different wads on the market. There are different gauges, colors, heights and designs of all configurations. All are an attempt to build a better mousetrap and, although their job is similar in the many different hulls, each is different. The mere substitution of one plastic wad for another can cause chamber pressure to vary plus or minus 1,000 psi (pounds per square inch). This pressure variation can range upwards to the point of danger or downwards where bloopers and erratic performance occur.

Ample recipes are available in the data section of this handbook.

⚠ WARNING—DO NOT SUBSTITUTE COMPONENTS. INDISCRIMINATE COMPONENT SWITCHING CAN ALTER BOTH BALLISTICS AND PERFORMANCE, CREATING AN UNSAFE CONDITION THAT MAY CAUSE INJURY OR PROPERTY DAMAGE.

Remember the first commandment of baking—If you want chocolate cake—you've got to follow the chocolate cake recipe. Play it safe. Use only the recipes, as stated, in the data section.

⚠ WARNING—WHEN YOU HEAR AN "OFF-NOTE" SOUND OR "BLOOPER" INSTEAD OF A NORMAL REPORT, CHECK THE BORE OF YOUR SHOTGUN FOR A "LODGED" WAD. IF THERE IS AN OBSTRUCTION, THE NEXT SHOT COULD CAUSE A BURST BARREL AND POSSIBLY SERIOUS INJURY. DON'T TAKE A CHANCE—CHECK YOUR BARREL.

Wad Seating Pressure—Wad seating pressure, generally, is not critical when using plastic wads. Wads must be seated on the powder with no airspace between the powder and wad. Winchester, in its "BALL POWDER LOADING DATA" booklet, states, "Any pressure from 20 to 100 pounds is acceptable... ...A safe level to use is 40 pounds, from which the loader may vary at his own choice to get the best crimp."

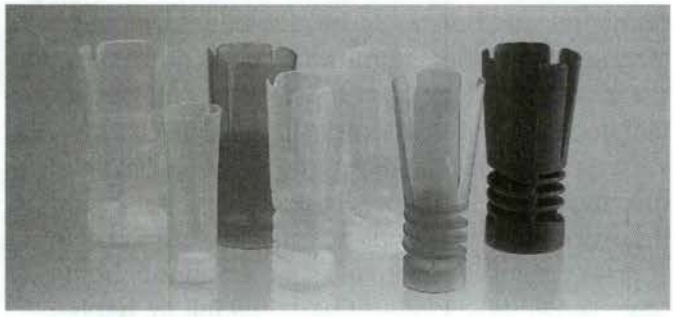
On *RCBS* presses, plastic wads are seated by pressure and "feel" by the "rammer tube". In order to set this pressure, follow the instruction booklet that comes with the press. *RCBS* also advises that while the press has been preset at the factory for the average pressure required, handloaders may find it desirable to increase or decrease the amount of pressure to the wad manufacturer's recommendation.

Sometimes, after dropping shot, we find there isn't enough room to allow for a good crimp. In double-checking the recipe, we find everything is right. When this situation occurs, adjust your rammer tube down for an increase in wad pressure. This will compress the wad shock-absorbing section somewhat and allow more room for the shot and crimp. Use the minimum amount of pressure required to do this job.

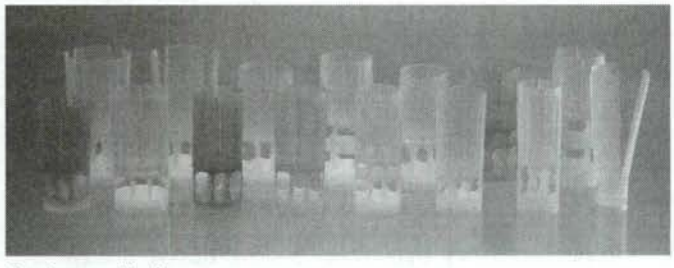
When we reload, our choice of wad pressure is approximately 40 pounds. This ensures that the wad

is firmly seated on the powder and that all air has been purged. You see, the powder can be kinda fluffed-up after being dropped from the bottle into the hull. Any variation from wad pressure "feel" must be considered a sign of trouble. Feeling light pressure could indicate a light charge of powder, an improper or damaged wad, a damaged or partially missing base wad or possibly that the reloading press has lost adjustment. A heavy pressure feel could indicate a heavy charge of powder, an improper or damaged wad, a loose or damaged basewad that has slipped forward, or an obstruction in the hull itself such as a leaf, twig, feather(s) or even a dirt dauber nest (yes, we've seen those too). Light or heavy variation could also mean that a different hull could be mixed in by accident. Be aware of the wad pressure feel each time a wad is seated.

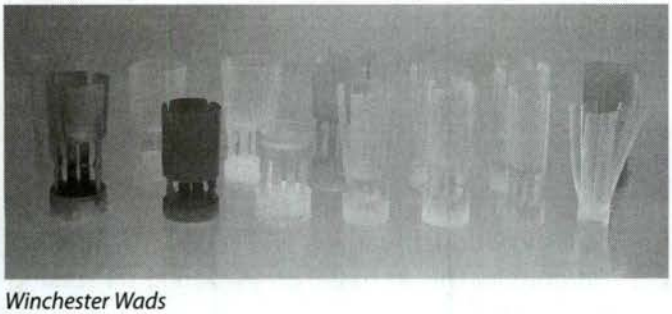
RCBS reloading presses have plastic wad guide fingers to speed wad insertion. If worn or damaged, the fingers may cause the wad cup to catch on a point of the hull, causing the cup to be cut or deformed, breaking the gas seal, and possibly causing soft, squib or blooper loads. To eliminate this problem, replace the worn or damaged wad guide fingers. Replacements are available in the gauge of your choice from your local independent sporting goods retailer or *RCBS*.



Federal Wads



Remington Wads



Winchester Wads

The following section will help you to recognize wads by sight that are used in the data section recipes.

What kind of wads will we see in the future? Other than wads specifically manufactured for non-toxic shot, we're likely to see more attempts to design wads for specific requirements. One such wad, introduced by Federal, is already in use. First, let's understand a conventional wad and how it performs. Conventional wads have petals in the shot cup portion that open up in the front of the wad quickly. As soon as the wad, containing the shot, exits the barrel, shot is released into a cloud, as the wad falls away quickly. At that point, the shot isn't protected in any way.

Federal calls their revolutionary new wad the FliteControl system. With the FliteControl wad, as soon as it exits the barrel, the shot is kept inside of the wad since there are no forward slits in the shot cup portion. This keeps the shot in the wad for an extended period of time—up to 20-30 feet, depending on the configuration of the wad. Then six flaps in the overpowder (rear) section open up, acting as a brake, and starts slowing the wad down. In addition to the rear flaps, the side of the wad has three additional flaps, that are forced outward from the shot setback pressure, that act as additional brakes helping the wad slow down even more as it separates from the shot mass. This design helps the wad stay with the shot mass longer, thereby choking the pellets into a lethally tight pattern and preventing the shot from forming a vertical mass as it exits the muzzle. Instead, it launches pellets horizontally as a garden hose does—in a stream.

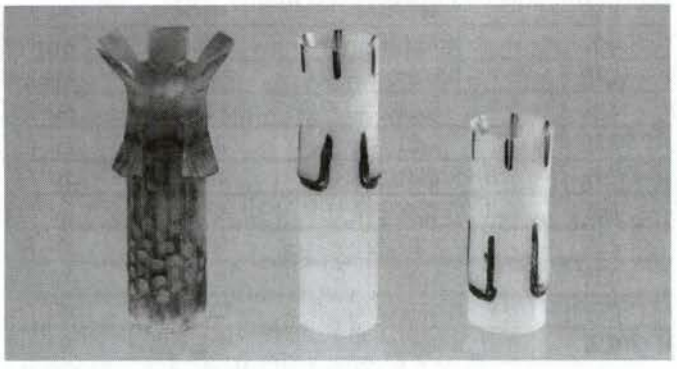
As soon as the wad, containing the shot, exits the barrel, shot is released into a cloud

The wad controls the pattern more than the choke does. Since the shot doesn't start to spread, until the wad flaps open up and slips off the shot down range, patterns are up to 30% tighter compared to traditional wads. In a way, the FliteControl wad system can be compared to an arrow. The front is heavy from the shot and the rear flaps stabilize the system as feathers (fletching) do. Therefore, the biggest difference of the FliteControl system, compared to a conventional wad, is the rear-braking flaps that pull the wad off the shot while conventional wads, in a way, "throws" the shot.

Fired Federal FliteControl Wad in Flight

Will the FliteControl wad be available as a component? It isn't yet and plans to do so haven't been resolved. What handloaders can count on is that similar designs will be available that will probably work around the patent. All handloaders hope the FliteControl wad will be available as a component in the near future.

Pictures of new (one wad is used in turkey loads, the other is used in buckshot loads) and fired FliteControl wads are shown below. Note to handloaders: The new, unfired, FliteControl wads pictured below have black lines marked on the rear and side slit flaps to stand out better in the photograph.



Fired and New Federal FliteControl wads

Section 5 - Shot

Selecting Shot—No Longer a Shot in the Dark

There are two kinds of shot handloaders are concerned about—lead and non-toxic metals. Lead shot is available in several types and sizes. Pictured below is a cute little paperweight once available from Federal showing some of the available sizes of shot.

Federal Shot Paperweight

Soft Shot—Shot containing up to 0.5 percent antimony alloyed with lead is the softest shot available. Soft shot performs best for skeet and close range shooting. For any targets under 20 to 25 yards this shot provides a distinct advantage. The softer the shot, the more each pellet will deform when the shotgun is fired. When shooting quail, grouse, some pheasants, etc., an open-bored choke with soft shot will spread the pattern for efficient shooting at short ranges.

Hard Shot—Shot containing more than 0.5 percent antimony is known as hard shot. Hardness increases as the antimonial content increases and so does the cost. The amount of antimony alloyed with the lead in the pellets is varied by the manufacturer depending on the purpose for which the shot is designed. Most of the commercially "bagged" shot is in this category and contains about 1 to 2 percent antimony. This shot performs best at medium ranges from 25 to 40 yards. Factory loads (first-line ammo) will have shot in this hardness range.

Extra-Hard Shot—Current top-of-the-line target ammunition made by Federal, Remington and Winchester in 7-1/2, 8, 8-1/2 and 9 shot size has an antimonial content between 5 1/2 and 6 percent. If a handloader desires to duplicate this level of shot hardness in his/her reloads, he/she will have to buy Lawrence's Magnum Brand, Remington's STS Grade or West Coast brands of shot. Extra-hard shot is used for shooting that demands tight patterns at long range. Typical uses are trap, especially handicap trap, sporting clays and sporting loads. This shot is perfect for pass shooting on those occasions when upland-birds are flushing or flying at great distances. Complete specifications of both Lawrence Brand and West Coast Shot follow in this section showing the amount of antimonial alloy.

Plated Lead Shot—Plated shot is usually (check the "Spec" sheets) extra-hard (Magnum) lead shot electroplated with copper or nickel to resist bore deformities better and to enhance penetration of game. This shot is just amazing. It just doesn't pull feathers into game and is by far the best secret weapon for long-range performance available. Shown above are two pictures—one illustrates some of the worst quality copper plated lead shot (ever seen by your author) which was removed from a shell manufactured by a major domestic manufacturer. The other is a picture of some of the best nickel-plated shot produced by the same major domestic manufacturer.

The following information that says it best, is reprinted from Ballistic Products' catalog and used with their permission. Our thanks to Ballistic Products for sharing this information.

Copper Plated Lead Shot

Nickel Plated Lead Shot Sample

"Nickel plated lead shot penetration and energy transfer of nickel plated shot is unequaled. In terms of these criteria, nickel shot is the ultimate game pellet. While the surface of the copper-plated shot is hard, nickel-plated shot is even harder. Nickel-plated shot was originally developed in Italy for high stakes live pigeon shoots. Today, nickel plated shot is used by Olympic shooting teams because their targets move so fast and are so distant only the tightest patterns will do the job. Tough pheasants are taken with #5 - #7-1/2. Top sporting clays shooters use the fine #8s for their serious competition shoots. American turkey hunters prefer nickel shot for dense penetrating patterns. Nickel-plated shot is the recommended pellet for all of BPI's finest Master HITS series loads."

Ballistic Products Nickel Plated Lead Shot Bottle

(Editor's note: BPI's Master HITS series specialty load information is readily available from Ballistic Products.)

The most important thing is to know how to buy whatever hardness of shot you desire. SAAMI, the Sporting Arms and Ammunition Manufacturers Institute set the standard of antimony percentages in "soft" and "hard" shot. The problem is that not every arms and ammunition manufacturer belongs to SAAMI. In fact, the only shot makers that belong to SAAMI are Remington and Winchester. Shot manufacturers have marketed their products with names like "chilled lead shot," "American standard hard shot," "hard lead shot," "extra-hard lead shot," "hard chilled shot," etc. Years ago shot which that did not contain any antimony was called soft or drop shot, while any shot containing antimony was called chilled shot. "Soft" and "hard" have clear meanings on a common sense level but beware of these same words of a bag of shot. The solution to our problem is for shot manufacturers to stamp the actual antimonial content on the bag. Perhaps this will happen in the future. For now, we have specification sheets from some manufacturers that give the antimony percentages so we can make our choice.

The following charts of LAWRENCE BRAND™ shot products is reprinted, with permission, on this page. The chart shows different types, sizes, counts and alloys of shot with a down-to-earth description of each. As a point of interest, it can be observed from the shot size chart that shot diameter is equal to 17 minus the shot size number, e.g., #4 shot is .13" in diameter, #6 is .11", etc.

Lawrence Brand Lead Shot Specification

Type of Shot
Graphite-Coated
LAWRENCE BRAND® CHILLED SHOT
(American Standard)
Equivalent Hardness Factor:
Game Sizes
4, 5, 6-2% Antimonial Lead Alloy
Target Sizes
7½, 8, 9-2% Antimonial Lead Alloy

Shot Name or Number	Diameter (in.)	Pellets/Ounce (approx) Std. Chill Alloy
No. 9	.08 (skeet)	570
No. 8	.09 (trap)	400
No. 7 1/2	.095 (game, trap)	340
No. 6	.11 (game)	220
No. 5	.12 (game)	168
No. 4	.13 (game)	132

Type of Shot
Graphite-Coated
LAWRENCE BRAND® HIGH ANTIMONY MAGNUM SHOT
(American Standard)
Equivalent Hardness Factor:
Game/Target Sizes
6, 9-5% Antimonial Lead Alloy
7, 7½, 8, 8½, 5% Antimonial Lead Alloy

Shot Name or Number	Diameter (in.)	Pellets/Ounce (approx)
No. 9	.08	585
No. 8 1/2	.085	490
No. 8	.09	410
No. 7 1/2	.095	350
No. 7	.10	310
No. 6	.11	225

Type of Shot
Wax-Coated
LAWRENCE BRAND® COPPER-PLATED LEAD SHOT
(American Standard)
Equivalent Hardness Factor:
Game/Target Sizes
Game Sizes
4, 5-2% Antimonial Lead Alloy
6, 5% Antimonial Lead Alloy
7½, 5% Antimonial Lead Alloy

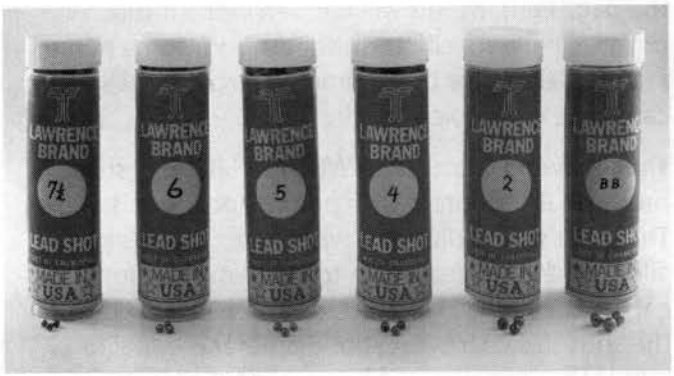
Shot Name or Number	Diameter (in.)	Pellets/Ounce (approx)
No. 7 1/2	.095	359
No .6	.11	226
No. 5	.12	172
No. 4	.13	135

Check Lawrence Brand Shot Sizes by These Circles

The circles printed here enable you to accurately check sizes of lead shot from No. 9 through No. 4. As you know, the diameter increases by .01" from each number size from 4 through 9. Half sizes, like No. 7 1/2, increase by .005" over full number (No. 7) preceding it. The ounce counts shown apply to regular production packaging of Lawrence Brand High Antimony Shot, counted pellet by pellet from a stock package. Although there is a "commercially acceptable" tolerance for "over" and "under" sizes, variations in Lawrence Brand shot sizes are held to a minimum. The target shooter or hunter can feel confident that the loads contain very close to the number of pellets indicated.

No 9	No. 8	No. 7 ½	No. 7	No. 6	No. 5	No. 4
.08	.09	.095	.10	.11	.12	.13

If handloaders live on the east coast, Lawrence Brand shot is readily available. West coast handloaders will



Lawrence Brand Sample Shot

find that West Coast Company's shot is readily available. Price of shot is always a freight issue.

Most of today's shot is produced by pouring molten lead through a perforated pan. As the lead passes through the holes, it free falls through the air into a water tank where it cools and is collected. The total amount of fall may be from 160 to 195 feet in a "shot tower."

West Coast Company's Sample Shot

Once the shot has cooled, it is transported by conveyors on a journey where it is graded, sorted by size and polished by a tumbling action in graphite. Any shot that is out of round or does not fall in the size tolerances is automatically rejected and returned to the melting pot.

Although the process is the same for all, some shot is harder to produce than others. Cold weather is an advantage in producing the larger sizes of alloyed shot. Buckshot cannot easily be made by the drop method. It is usually swaged on automatic machinery from lead wire.

West Coast Company's Lead Shot Sizes

Shot size	Specs
#4	.127 to .132
#5	.118 to .123
#6	.108 to .112
#7	.098 to .102
#7½	.093 to .097
#8	.088 to .092
#8½	.083 to .087
#9	.077 to .082

All shot is "Magnum Shot" with a minimum of 5% antimony. Antimony averages 5.25%.

25 Pound and 10 Pound Bags of Shot

Carefully graded shot is usually selected for plating purposes whether it is copper or nickel plated. Plated shot is expensive. Where most shot is packaged in cloth or reinforced plastic bags of 25 pounds each, copper plated shot is packaged in amounts of 10 pounds. Nickel-plated shot is now packaged in plastic jars in 11-pound amounts. Extra-hard magnum or nickel-plated shot should be used when handloaders need the absolute maximum in range and pattern performance.

Our world is changing daily and no business is changing more than the shooting sports industry. There's more regulation of our products and services than ever. A lot of that is coming from small groups with an agenda they need to force. Because of the microscope our shooting industry is under, we need to do a better job of policing our business and ourselves.

One important way is to reclaim lead shot at sporting ranges—trap, skeet and sporting clays. Trap and skeet ranges have been reclaiming lead for many years. Sporting clays ranges are another matter that is being investigated. Handloaders should be aware that some reclaimed lead shot is just screened, sorted and may be polished then bagged and sold at a very attractive price. A sample of reclaimed lead shot pictured on the next page is typical of its quality.

Reclaimed Lead Shot

Handloaders will have to judge for themselves whether or not reclaimed shot fits their requirements.

One of the most interesting reclamation operations is conducted by Sears Trucking Company of El Reno, OK. Mr. Garland Sears (800/522-3314) administers the company's operation that physically removes lead from soils at trap and skeet ranges with motorized equipment. Sears' operation has been reclaiming lead shot at shooting ranges since the 1950's. According to Mr. Sears, over five million pounds of lead shot was reclaimed in 2005, of which 700,000 pounds was reclaimed at the National Gun Club in San Antonio, TX. This is the fourth time National Gun Club has been "mined." It took four weeks for three of Sears' four trucks to complete their process. At another location in Tucson, AZ, with over 15 years of reclaiming records, (mined every three years), Sears estimates that 90—95% of lead shot is recovered.

Gene Sears Trucking Company's Mobile Equipment

Sears sells reclaimed lead shot to lead smelters. The primary method of material transporting in the lead industry is mobile equipment. Sears Trucking Company utilizes 55-gallon steel drums to transport reclaimed lead shot to the smelters. Lead refining at lead smelters is accomplished by melting in a large kettle, then the content of trace elements is adjusted to produce the desired alloy. Common products are soft (pure) lead and various alloys of hard (antimonial) lead including lead shot. See the picture below taken at the National Gun Club in San Antonio, TX, of one of the trucks and mobile equipment that Sears uses. The picture is reprinted here with the permission of The National Gun Club, San Antonio, TX and Gene Sears Trucking Company, El Reno, OK. We appreciate the cooperation of Ms. Julie Moreno, Graphic Designer at The National Gun Club and Mr. Garland Sears in providing this picture.

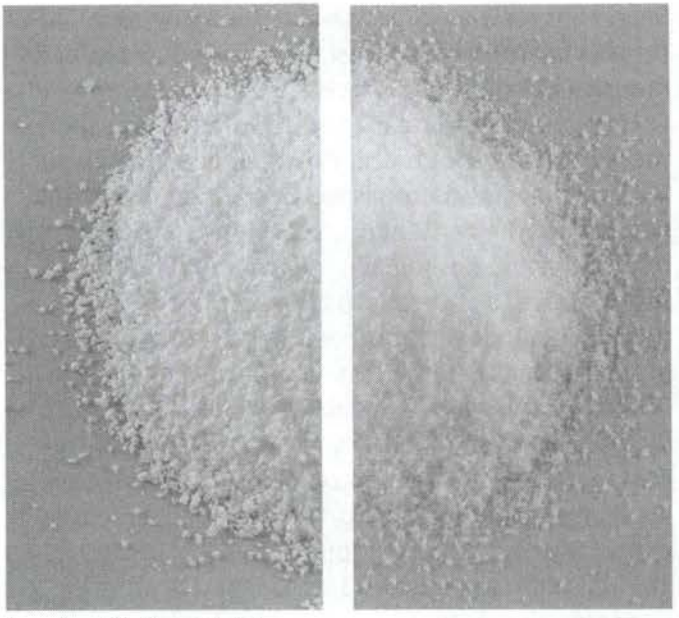
Shot deformation occurs in several ways. If shot is allowed to touch the barrel, the scrubbing action produces a flat surface on the pellet. This pellet tends to have an erratic flight, flying like a Frisbee, and will have a greater than normal loss of velocity. Deformation is also caused by acceleration of the bottom layers of shot crowding together, being crunched into the forcing cone and, finally, the squeeze of the choke.

Deformed shot does not fly true and limiting the deformation to shot with antimony, results in better patterns.

Almost all shot has some antimony content. It's the standard alloy added to lead to increase hardness, which in turn will cut down on the deformation of the shot when fired from a shotgun. Deformed shot does not fly true and limiting the deformation to shot with antimony, results in better patterns.

Thus the harder the shot, the better the patterns and performance will be. Most all "Magnum" shot has up to 6 percent antimony. This is what will be found in most factory premium shotshell loads such as Gold Medal, STS and AA's. Cheaper shells and promo shells will have less antimony because it is less costly than the harder shot.

Closer targets as in skeet do not necessarily require the hardest shot, although most competitive shooters demand the best performance possible. Therefore, handloaders use it in their reloads, and buy premium loads for competition shooting. In sporting clays and handicap trap, using hard shot on the longer shots will definitely have the advantage over softer shot, which will deform more easily and patterns don't hold up as well at the longer distances.



Samples of buffer material

Shot deformation is reduced four ways:

1) Hard or plated shot resists deformation.
2) Petals of the plastic cup around the shot charge, greatly reduce flats caused by bore scrubbing.
3) Cushion type wads tend to collapse gradually under force of the powder gasses and transmit less impact to the shot.
4) By adding buffer material such as finely ground polyethylene.

The two buffering products, shown above, were only available for a short time—Winchester's "Super Grex" and MEC's #520 Plastic Buffer. Currently three types of buffer is available from:

Ballistic Products, Inc.

Box 293 Corcoran, MN 55340
888/273–5623
www.ballisticproducts.com
Attn: Customer Service

Ballistic Products three brands:
1. BP Original Design Buffer
2. Mix 47 Buffer 500CC
3. Bismuth Buffer

Important Information Regarding Buffered Loads for Handloaders

⚠ WARNING—THE USE OF ANY BUFFERING MATERIAL IN A SHOT COLUMN WILL SIGNIFICANTLY ALTER THE BALLISTICS FOR ANY GIVEN SHOTSHELL LOAD AND CAN, IF NOT CAREFULLY TESTED, PRODUCE DANGEROUSLY HIGH PRESSURES RESULTING IN INJURY OR PROPERTY DAMAGE.

The development of loading data for any buffered load requires extensive pressure and velocity testing, in a ballistics lab, to insure that the proper speed propellant powder and propellant charge weight are being used for the specific buffering material.

The use of talc, flour, cornmeal, breakfast cereal and similar non-compressible materials should not be considered as buffering material as they can produce dangerously high, erratic pressures in an unpredictable manner.

The rate with which a shotshell propellant burns within a shotshell is governed largely by the uniform compressibility of the wadding and the shot itself. Changes in the compressibility, such as is the case with buffering materials, can drastically change the burn rate of the propellant. Careful testing is required to assure that the load will not result in a damaged gun, or worse, personal injury. The buffered recipes in this handbook have been extensively tested. **Therefore, we do not recommend the use of buffered shot reloads, without proven lab testing.**

Nothing is more important to a shooter than his shotgun, the pattern it shoots, and the downrange pattern performance of his/her reloads. If reloaded or factory-loaded shells are assembled using hard shot and the other components are up to par, shotguns should shoot top quality patterns. Any compromise will result in inferior patterns and downrange performance. This happened in the early 1970's when the cost of lead and alloys used to harden lead took a dramatic jump in price. Before the price increase of lead, it seemed like a price war was going on. The red "bullets" cost about the same as the black and wine colored ones did. All manufacturers were trying to get their product to the market place at the lowest price. While this is a prime example of the free enterprise system in action the quality of the product suffered. Many of us will remember the gasoline wars of the '50's and '60's; it seems like that fuel always knocked more, too.

Then we heard the Russians bought up most of the lead supply on the world market. After the Three Mile Island incident, we heard that all nuclear reactors had to have another layer of lead bricks added. Whatever happened, the net result was that a bag of shot doubled, tripled, then quadrupled in price. Gone forever was the $6.00 25-pound bag of shot.

What happened next? Well, ammunition manufacturers cut the percentages of the expensive alloys in certain types of shot. Many factory loads, such as the promotional Dove and Quail, Duck and Pheasant, Rabbit and Squirrel, Sparrow and Crow, Skunk and Coyote, etc., were introduced to the market. These loads are inexpensive compared to the others, and if ever there is a perfect example of the buyer getting what he paid for, this is it. If this seems like throwing a brick at the shotshell industry, it is not. Ammunition manufacturers were caught in a crunch and all companies were faced with the same problem. Rising costs from inflation and raw materials had already made shotshells so expensive that many shooters were in danger of being

priced out of the market. To prevent more drastic price increases, antimony percentages dropped when the price of lead and antimony skyrocketed. These new "promotional" loads contained relatively soft shot, in reduced amounts, which wasn't graded very close in size. Reloadability suffered too, because the manufacturers cut as many corners as possible to keep the cost low. In many areas of the country the traditional field load for doves and quail was once a "Pigeon Load"—3-1/4 dram 1-1/4 ounce load. The amount of shot gradually was cut to 1-1/8 ounce, and now to 1 ounce. Many people believe that a 1-ounce load of shot belongs in a 20-gauge field load.

we do not recommend the use of buffered shot reloads, without proven lab testing.

What will happen in the future? Here's some hard facts—China and India are growing at 10% a year and their economy is growing so fast they are driving up the price of all commodities. Steel, Zinc, Cadmium, Plastic, oil, scrap iron, and such have skyrocketed along with lead and antimony based on demand.

About 20 pounds of lead is used in car batteries. About 20% of the weight of computer monitors, television tubes and car batteries is lead. That's a lot of CRT computer monitors, television tubes, car batteries, plate glass, leaded glass (crystal) and a host of other items coming on line to serve the demands of 2.4 BILLION people! Shot and ammunition companies are so dependent on lead that they buy supplies in the futures market at least a year ahead. What results is that shot goes up first then factory ammo about a year behind. All shotshell shooters and handloaders can all expect to see those cheap bargain basement priced imported shells disappear shortly.

5 Year Lead Prices

The chart above shows the world price of lead over a five-year period. Handloaders can track the world price of lead on the Internet at:
http://www.kitcometals.com/charts/lead_historical_large.html

Handloaders can estimate the price of a bag of lead shot by, adding the world lead price, $5.00/100 pounds to manufacture the shot, transport it and adding a buck/bag (usually the rule) for the destination dealer. Delivered lead shot is always a "carload" shipment—a 40,000-pound truckload amounts to about 1,500/1,600 bags. "Today's pricing adds up to ~$35.00/bag of chilled shot. Now, there's about 1-1/2 pounds of antimony in a 25-pound bag of true 6% antimony (magnum shot). For magnum grade shot, add another $2.00/bag (current commodity price). That all amounts to ~$37.00/bag of magnum shot at today's prices."

Here's another example that drives the domestic price of lead shot and factory loaded shotshells. Container load quantities from Starshot in Peru were once available in 55 Gallon drums. Now Starshot has refused to ship to the US since they can sell it in Europe for the same amount of Euros as they were getting in dollars. Then they get a big break in the currency exchange vs. the US dollar. Two years ago, the Euro conversion was 81 cents per dollar and is now $1.39 (these prices are a snapshot in time and will always be changing in the future). Ocean container freight has also increased dramatically. So, all of those cheap overseas supplies are going to disappear here quickly and imported brands of shotshells like Mirage, Cheddite, PMC, Nobel Sport, RIO, and the like will also be going up in price a great deal.

The good news is that this means that there will be new sources at some point for domestic supplies at lower prices as new entrepreneurs enter the market. As the dollar falls, domestic raw materials should go down at some point as new capacity comes on line. Fuel prices, however, may impact any advantage.

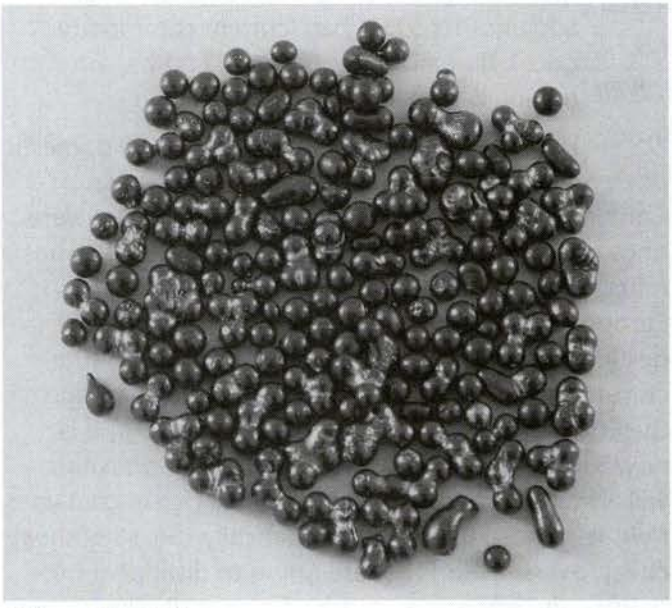
Almost all shot has some antimony content. It is used as an additive to lead, to increase hardness, which in turn will cut down on the deformation of the shot when fired from a shotgun. Deformed shot does not fly true and limiting the damage to the shot (discussed earlier in this section), results in more shot staying in the usable pattern.

Thus the harder the shot, the better the patterns and performance for the shot. Most all "Magnum" shot has 5 or 6 percent antimonial lead alloy. This is what will be found in most premium shotshell loads such as AA's, STS's and Gold Medal's. Cheaper shells including promotional loads will have less antimony because it is less costly than the alloyed shot.

Closer targets as in skeet do not necessarily require the hardest shot, although most competitive shooters demand the best performance possible, and use it in

their reloads. Then they buy premium factory loads for their competitive shooting events. In sporting clays, handicap trap and sporting (field) loads, using hard shot at longer ranges will definitely have the advantage over softer shot, which deforms easily and patterns don't hold up as well at the longer distances.

In the picture below you will see a sample of lead pellets that I removed from a well-known manufacturer's promotional load during the middle 90's.



Deformed Shot Pellets

These pellets haven't even been down the barrel yet. If they aren't round and true to start with, what will they look like after the shock of acceleration, the crunch of the forcing cone and the squeeze of the choke. Well, probably they'll look like a bunch of Frisbees—and fly like Frisbees do, too.

If they aren't round and true to start with, what will they look like after the shock of acceleration

Some information such as the amount of shot, is written on the box label, but some of it isn't, such as the alloy content of the lead. Similarly, the bags of shot didn't show the hardness, or it was misleading or overstated. To top it off, some outdoor writers failed to mention it, didn't know, or glossed it over. Choosing shot was somewhat of a shot in the dark.

After reading Bob Brister's book, *Shotgunning, The Art And The Science* published in 1976, many people, for the first time, learned, and then understood, the facts of shot hardness and pattern efficiency. During this time, some knowledgeable shooters turned to the target loads as a source for empty hulls because of the reloadability problem related to using promotion load hulls. And, low and behold, did they make a startling discovery. The lowly trap load that so many sportsmen think is barely enough to break a clay pigeon was a deadly dove and quail load. Then they had the best quality hulls to reload.

This writer, on several occasions, has seen money change hands when this lesson was learned. The 3 dram 1 1/8 ounce trap load (which has a high, about 6 percent antimonial content as well as almost perfectly round pellets) just shoots rings around the high brass 1 1/4 oz. "rocket" loads that you "have to use when the birds fly high." Remember "Joe" who isn't a handloader? Well, Joe paid for his lessons and yours truly made some good buys on once-fired hulls from him when he began to use and wager on the lowly trap loads. Oh yes, as I remember, Joe finished a winner before word got around about what he was doing. No, Joe still doesn't reload, but he still remains a good source of once-fired, target grade factory hulls.

It is a mystery why no major manufacturer has introduced these high-quality "target" loads in a new package with a different name like Super Dove and Quail. I have discussed this possibility with a sales representative of a major manufacturer. He agreed that the concept would make for an excellent load, but went on to say that it probably would never happen as the promotional loads were selling without any problems. "Anyway," he said, "the Super Dove and Quail load would be so good that the hunter success ratio would be higher." When I asked what would be wrong with that, he replied, "We wouldn't sell near as much ammunition as we do now if the loads were that good!" Well, I didn't waste much more time with that manufacturer's hero.

Gradually, the value of antimony was being realized and some changes began. In the late 70's and early 80's, shot manufacturers began to improve their shot products and advertise in words that we could understand. Now we handloaders and shooters have clear choices of the shot products that will fit our handloading needs and requirements.

The following information is extremely important to all handloaders: *"Shotgun Barrels, Chokes 'n Ballistics"* is a reprint courtesy of *Shotgun Sports Magazine*, P.O. Box 6810, Auburn, CA 95604, 800/676-8920 www.shotgunsportsmagazine.com. It is reprinted on the next page with the permission of *Shotgun Sports Magazine*, whose cooperation in providing this material is greatly appreciated.

Shotgun Barrels, Chokes 'n Ballistics

Approximate Number Of Pellets Per Load

Size		9	8	7½	6	5	4	2	BB	#4 Buck	#3 Buck	#1 Buck	#0 Buck	#00 Buck
Ozs. of shot to the shell	1⅜				309		186	124	69			16	12	
	1¼	731	513	438	281	213	169	113	63	27				
	1⅛	658	461	394	253	191	152	101				12		9
	1	585	410	350	225	170	135	90			20			
	⅞	512	359		197	149	118							
	¾	439		263	169	128	101							
	½	293		175	113	85	68							

Choke & Pattern Percentages

DESIGNATION	CHOKE IN THOUSANDTHS OF AN INCH	PERCENT INCREASE OVER CYL.	PATTERN PERCENT*
Over Choke	.055"	27%	67%
Full	.040"	35%	75%
Imp. Mod.	.030"	33%	73%
Mod.	.020"	27%	67%
Imp. Cyl.	.010"	17%	57%
Skeet	.005"	13%	53%
Cyl.	.0"	—	40%

This chart shows the results to be expected as choke constriction is increased. Note the effect of choke diminishes as the upper limit of effective choke is reached.

*Percentages shown are averages, and individual guns or loads may show different results.

Velocity/energy Exterior Ballistics — Shotgun

Shot Size	Velocity (f.p.s.) at: f.p.s. at Muzzle	10 yds.	20 yds.	30 yds.	40 yds.	50 yds.	60 yds.	Energy in ft./lbs. per pellet at: Muzzle	10 yds.	20 yds.	30 yds.	40 yds.	50 yds.	60 yds.
7½	1295	1070	910	795	705	630	575	4.63	3.16	2.30	1.74	1.37	1.10	0.91
8	1255	1035	880	765	675	605	550	3.69	2.50	1.80	1.36	1.07	0.86	0.70
7½	1240	1035	885	770	690	620	560	4.24	2.94	2.16	1.64	1.30	1.06	0.87
8	1235	1020	870	755	670	600	545	3.57	2.43	1.76	1.33	1.05	0.84	0.69
7½	1220	1020	875	765	680	615	560	4.11	2.86	2.11	1.62	1.28	1.04	0.86
8	1220	1010	860	750	665	595	540	3.48	2.38	1.73	1.32	1.03	0.83	0.69
7½	1200	1005	865	760	675	610	555	3.97	2.79	2.06	1.59	1.26	1.02	0.85
8	1200	995	850	745	660	590	540	3.37	2.32	1.69	1.29	1.02	0.82	0.68
9	1200	975	820	710	625	555	505	2.38	1.57	1.11	0.83	0.64	0.51	0.42
8	1165	970	835	730	650	585	530	3.18	2.21	1.62	1.24	0.98	0.80	0.66
9	1165	950	805	695	615	550	495	2.24	1.49	1.07	0.80	0.62	0.50	0.41
8	1155	965	830	725	645	580	530	3.18	2.18	1.60	1.23	0.97	0.79	0.65
9	1155	945	800	695	610	545	495	2.20	1.47	1.06	0.79	0.62	0.49	0.40
7½	1145	965	835	735	655	595	540	3.62	2.57	1.93	1.49	1.19	0.97	0.81
8	1145	960	825	720	640	580	525	3.07	2.15	1.58	1.22	0.96	0.78	0.65

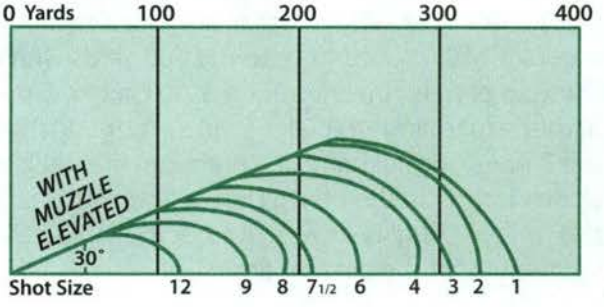
Time/drop Exterior Ballistics — Shotgun

Shot Size	Time of Flight (seconds) to: f.p.s. at Muzzle	10 yds.	20 yds.	30 yds.	40 yds.	50 yds.	60 yds.	Drop (inches) at: 10 yds.	20 yds.	30 yds.	40 yds.	50 yds.	60 yds.
7½	1295	.026	.056	.091	.132	.177	.227	0.1	0.6	1.6	3.3	6.0	9.0
8	1255	.027	.058	.095	.137	.184	.236	0.1	0.6	1.7	3.6	6.5	10.7
7½	1240	.027	.058	.094	.136	.184	.133	0.1	0.6	1.7	3.6	6.5	10.5
8	1235	.027	.059	.099	.138	.186	.238	0.1	0.7	2.1	3.7	6.6	11.0
7½	1220	.027	.059	.096	.137	.184	.235	0.1	0.7	1.8	3.6	5.6	10.2
8	1220	.027	.059	.097	.139	.187	.240	0.1	0.7	1.8	3.8	6.8	11.1
7½	1200	.027	.060	.097	.139	.186	.238	0.1	0.7	1.8	3.7	6.7	10.9
8	1200	.027	.060	.098	.141	.189	.242	0.1	0.7	1.9	3.8	6.9	11.3
9	1200	.028	.062	.101	.146	.197	.254	0.1	0.7	2.0	4.1	7.5	12.4
8	1165	.028	.062	.100	.144	.193	.247	0.2	0.7	1.9	4.0	7.2	11.8
9	1165	.029	.063	.103	.149	.201	.258	0.2	0.8	2.1	4.3	7.8	12.9
8	1155	.029	.062	.101	.145	.194	.248	0.2	0.8	2.0	4.0	7.3	11.9
9	1155	.029	.064	.104	.150	.202	.260	0.2	0.8	2.1	4.3	7.9	13.0
7½	1145	.029	.062	.101	.144	.192	.245	0.2	0.7	2.0	4.0	7.1	11.6
8	1145	.029	.063	.102	.146	.195	.250	0.2	0.8	2.1	4.1	7.4	12.0

Recoil In Foot/Pounds

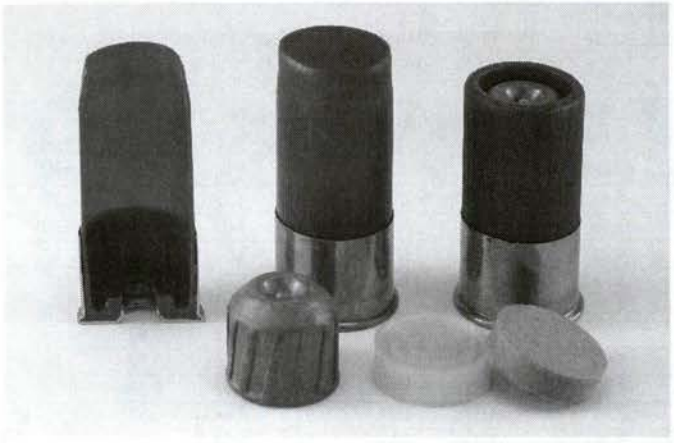
Gun Weight (pounds)	Gauge	Load	Comments	Recoil (ft/lbs.)
8.4	12	2¾"	1⅛ oz. shot	12.5
7.5	20	3" Mag.	factory load	13.0
6.0	12	2¾"	heavy game load	16.0
5.5	12	1 oz. slug		17.0
5.5	12	2¾"	1¼ oz. shot	24.0
5.5	12	3" Mag.	1¼ oz. slug	33.0
8.0	12	3" Mag.	1⅞ oz. shot	37.0
6.0	12	3" Mag.	1¼ oz. slug	45.0
6.25	12	3½" Mag.	2 oz. shot	55.0
6.25	12	3½" Mag.	2¼ oz. shot	70.0

Range of American Shot



"Shotgun Barrels, Chokes 'n Ballistics" is a reprinted courtesy of Shotgunner Magazing

Buckshot and Slugs—Buckshot and rifled slugs can be used in reloading shotshells. We can think of only two reasons why someone would want to do this specialized type of reloading: To say that you have done it; or to have a much greater appreciation for those cute little "five paks" of buckshot and slugs that the factory loads. If you must persist, some reloading information for buckshot is included in the data section. Pictured below are some interesting factory buckshot and slug loads.



Federal "Shorty" Experimental Shotshell Load for Law Enforcement.

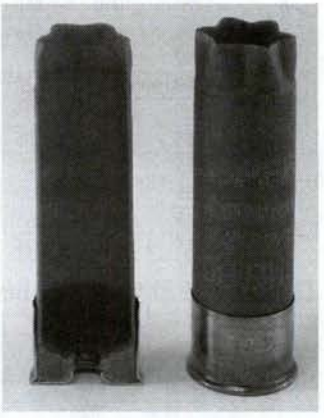
The Federal experimental load, shown above for law enforcement, is a 2-1/2" load. A one-ounce HP Foster slug is loaded over a 0.135 nitro card that is over a 1/4" plastic over powder wad. That's a lot of components to roll crimp to a 1-5/8" finished length. When the round is fired, the hull measures about 1-7/8" overall. Consider that a law enforcement grade Remington 870 will hold 5, 2-3/4" shotshells. By using a 2-1/2" load, the capacity increases from 5 to 7 rounds counting the chambered shell. This is accomplished utilizing the standard magazine without a factory or aftermarket extension, both of which are not approved by most agencies/departments. It is not known if this load will make it to the market. Currently, it's in the evaluation process by major law enforcement agencies/departments.

Federal's Premium Barnes Expander Sabot Slugs have an expansive hollow point that delivers expansion that's 150% greater than other slugs. It's capable of accuracy of 2" groups or better at 100 yards with rifled shotgun barrels. Incorporating a .50 caliber, 1-ounce Barnes expanding HP bullet inside a 12-gauge sabot, the Barnes slugs expand like premium rifle bullets upon impact. In the photo shown in the next column, this unique "Slug" is shown. It's not available as a component at the present time.

Barnes Expander Component Parts

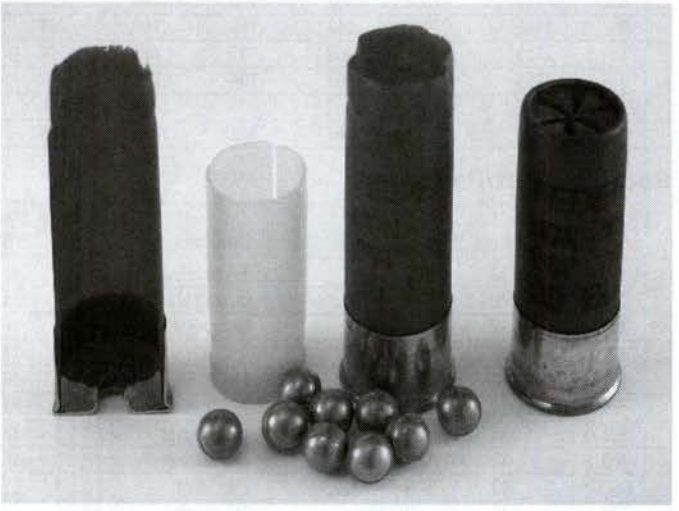
Speer buckshot loads are only available to law enforcement agencies/departments. It isn't likely an average handloader will ever encounter these loads or once-fired hulls.

Federal BallistiClean Buckshot loads are only available to law enforcement agencies/departments. It's not likely that handloaders will ever encounter once-fired hulls of this specialty law enforcement load either. Specifically designed for reduced hazard law enforcement training, the available 9-pellet 00 BallistiClean Buckshot is frangible and non-toxic. It features sintered copper and tin shot and a non-toxic primer ideal for indoor and outdoor range conditions. Sintered shot is formed in a mould with pressure and heat to solidify the copper and tin. There are ramifications of loads



Speer Law Enforcement 5-Pak Buckshot Loads

Shot is one of the most costly components and the most critical factor



Federal Ballisticlean Buckshot

like these as the development of "clean" types of ammunition (no hazardous metals) offers benefits for future target and sporting loads that could very well be mandated in the future.

Here are some of the features of this load:

- Non-toxic projectile eliminates hazard of airborne lead and barrel fouling.
- Patented Toxic-Metal Free primer provides consistent and reliable ignition.
- Unique non-toxic headstamp and cartridge markings for easy identification.
- Selected clean burning powder for consistent velocity and optimum ballistic performance.

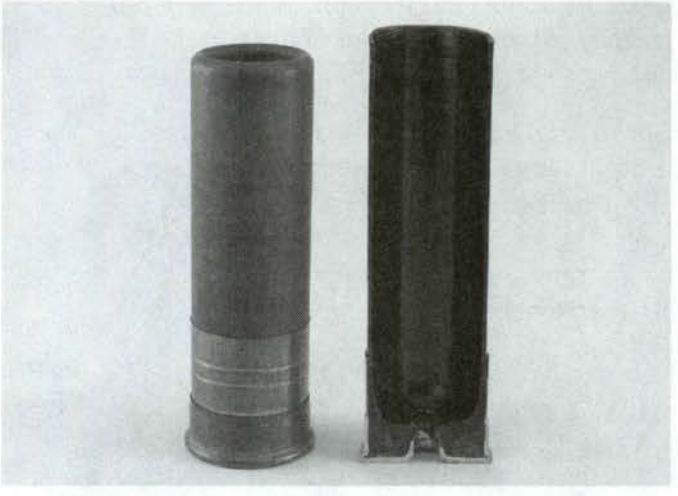
European Buckshot Load

The above specialty load picture should be self-explanatory. Buckshot pellets are connected to a strong wire. We can only guess this is an attempt to keep the buckshot pellets in a tight group. Your author has never encountered anything similar in our country. There are new and better ways to tighten up a buckshot or large shot pattern by using the unique FliteControl wad developed by Federal. This wad and pattern performance was previously discussed in the wad section of this chapter.

Another very interesting law enforcement load is the 12-ga "Bean-Bag" load. This load features approximately one ounce of shot loaded into small bags or "socks." The picture at the top of the next column shows both types. Bagged shot was the first generation load followed by the sock load. Notice that the sock load features a "tail" of material that helps to stabilize the sock when fired. Velocity for these type loads is approximately 300 fps. A slow load but "less-lethal" for specialized law enforcement uses.

Bean-Bag Law Enforcement Load

Pictured below are two interesting "industrial" loads—one Winchester factory slug load and one sectioned Remington hull. Both are 8-gauge. Loads like these are used in industrial operations, one of which is cleaning out "clinkers" in rotary kilns.



Loaded Winchester slug and sectioned Remington hull.

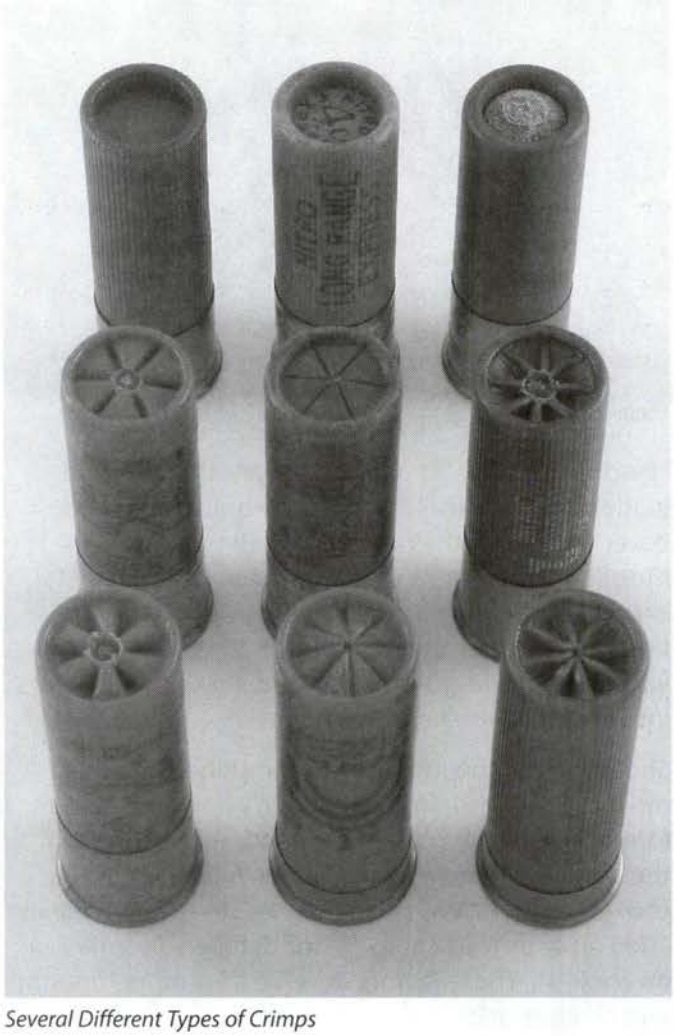
Handloader's Tip: At one time or another all handloaders will spill shot. Use your shop vacuum and cover the end of the nozzle with a woman's nylon hose (borrowed from your wife, of course) being careful all of it doesn't get sucked in—holding the hose tightly traps the spilled shot. Then turn off the vacuum, remove the stocking and shake the contents into a container—no muss, no fuss.

Shot is one of the most costly components and the most critical factor in our shotgun's downrange performance. In most cases the brand, shape, size and the degree of hardness are just as important as the choke. (Author's Note: See Chapter 10—"Care, Cleaning and Fun with Your Shotgun," for detailed information on chokes). These factors deserve a lot more thought and consideration.

Section 6 - Crimps

After all the new components have been inserted in the shell, the last operation is to close the mouth of the hull. Almost all modern reloaders seal the hull with a "star" or folded crimp. Although the crimp is not a component, per-say, it is very vital to overall performance. The crimp performs several important functions. It seals out dirt and moisture and keeps shot from leaking out of the hull. The crimp also helps confine powder gasses to ensure efficient combustion.

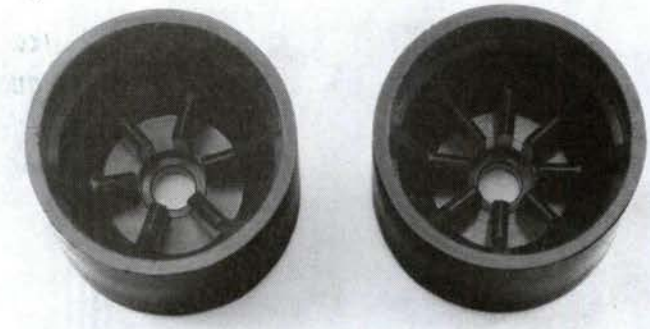
You can't have top quality reloads without a good crimp. With one-piece plastic wads, the quality and resistance from the crimp is absolutely essential to proper and uniform combustion. Before the crimp opens, there is a split second when the powder begins to burn well, the gas seal of the plastic wad obturates, and the cushioning section of the wad collapses and moves forward, compressing the shot against the inside of the crimp. Then the resistance of the crimp gives up, opens, and the shot charge begins the journey of being "fired" out of the barrel.



Several Different Types of Crimps

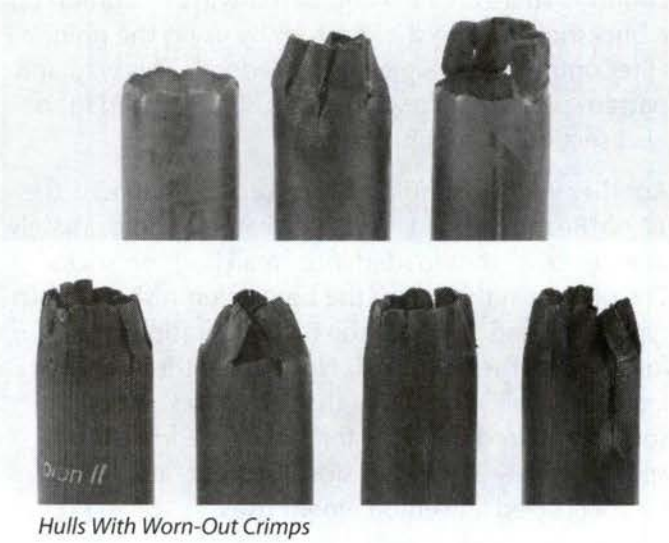
The folded crimp (sometimes called a star crimp) is used by most manufacturers today. This crimp was developed before World War II for paper shells and did away with the over-shot card used with roll-style crimp. Downrange performance was improved because the over-shot card occasionally caused blown or doughnut-like patterns. Generally, this problem is unknown when a folded crimp is used. The old-style rolled crimp continues in use for some .410 bore and 10-gauge loads. It is also used in most rifled slug loads.

Today's factory-folded crimps come in two types—8-point and 6-point. Both are satisfactory. For best results, the crimp of your reloaded shell should duplicate the original hull mouth creases. For this reason *RCBS* includes 6- and 8-point crimp starters for plastic and paper hulls.



RCBS 6-Point and 8-Point Crimp Starters

Shotshell reloading presents some special ignition problems, primarily because of the changing characteristics of the mouth of the hull. Both the old paper and the modern plastic hulls become worn, split or otherwise weakened at the mouth with repeated crimping. This is precisely where most of today's hulls wear out. Some of the more popular 12-gauge hulls with worn-out mouths are pictured.



Hulls With Worn-Out Crimps

We could reload and crimp these hulls again but they could possibly open up during our hunt, leak the shot to the bottom of our shell bag and go "PUFFFFFFFFF" if we mistakenly try to shoot them during the heat of a covey-rise. We are all guilty at one time or another of trying to get one more load out of our hulls. And remember, every time Joe hears a blooper he'll holler as loud as he can, "PULL THE TRIGGER HARDER!"

⚠ WARNING—IF YOU HEAR AN "OFF-NOTE" SOUND OR "BLOOPER", INSTEAD OF A NORMAL REPORT, CHECK THE BORE OF YOUR SHOTGUN FOR A "LODGED" WAD. IF THERE IS AN OBSTRUCTION, THE NEXT SHOT COULD CAUSE A BURST BARREL AND POSSIBLY SERIOUS INJURY. DON'T TAKE A CHANCE—CHECK YOUR BARREL!

Without a good crimp, you can't have top quality reloads. Anything less will reduce performance and can be a cause of bloopers. Uniform ignition requires confinement of the powder. Loosely confined powder results in muzzle flash, an off-note report, light recoil and little velocity. The problems of worn and weakened crimps are compounded when using a slow burning powder and/or firing these loads in colder weather. Cold weather can reduce the burning rate of powders to the point of actually stopping ignition. A firm crimp is a must for cold weather performance.

You can't have top quality reloads without a good crimp.

Using a slow-burning powder with a light shot charge will sometimes give dubious results. A firm deep crimp is required on a relatively light loading, because it resists immediate shot and wad movement and traps the powder gases to develop its pressure curve reliably. If the mouth of the hull is weakened from repeated reloading, initial energy from the primer and early gases can push a light load forward before the desired burning takes place, and the result is erratic performance. Uniform performance usually results when using a fast-burning powder with light shot charges, a medium-speed powder with intermediate weight charges and a slow-burning powder with heavy loads. Strong, firm crimps are most important when using slow-burning powders.

For our serious shooting and hunting activities, we use, and suggest using, once- or twice-fired hulls. This practice will go a long way in solving defective crimping problems. Hulls with worn-out mouths simply cannot accommodate a firm crimp. A defective crimp can open and leak shot—either in your shell bag, or worse, in the magazine of your gun. No damage may result but your shooting will be shut down until the shot is cleaned out. If a crimp opens in the barrel, shot can leak out and a blooper might result

Always remember, the finish crimp that we get from our reloading press will, to a great extent, depend on the condition of the hull's mouth and the adjustment and condition of our crimping die. This die is made to exacting tolerances and should be protected between periods of reloading. A light coating of a good quality oil such as OUTERS GUN OIL is suggested on the steel die as a rust and corrosion preventive. OUTERS GUN OIL is polarized so that it naturally attracts to and bonds with the metal, forming a barrier to rust and corrosion. Be sure to remove all oil and check for possible rust and residue before actual use. If rust or residue is found, a fine grade of steel wool and a good measure of elbow grease should solve the problem.

On the *RCBS* Mini-Grand, closing the hull is a two-step operation—"crimp start" at station #4 and "finish crimp" at station #5. First, a self-aligning crimp starter automatically adjusts to the original shell mouth creases and partially closes the hull. Then the hull is tightly closed. On the *RCBS* The Grand, progressive reloader, a third and final die tapers the crimp.

RCBS reloading presses are shipped from the factory set up, adjusted and tested to crimp 8-point hulls. Of course, we must make a change if we reload anything that doesn't match the factory set-up. For example, if we are going to reload 12-gauge Federal GAME hulls, we most likely will have to change out the 8-point crimp starter and use the 6-point one because the majority of the Federal GAME hulls were originally factory crimped with a 6-point folded crimp.

When a factory shell is fired, the crimp area of the hull will have a "memory" of the original crimp. We can visually determine whether the original was a 6- or 8-point crimp, and we can set up our *RCBS* press accordingly. Final crimping will bring these folds together neatly in the center, then recess the center of the folded area to lock the folds in place. When all adjustments are correct, the folds of both paper and plastic hulls will meet perfectly in the center with no spiral overlap of the hull (called "swirl") or a hole that might leak shot.

While the wad is primarily concerned with sealing and cushioning the rapidly expanding gases given off by the burning powder, an important secondary function is performed. It is in connection with the volumetric capacity of the empty hull itself and that of the powder and shot charge used. Simply put, the correct wad choice makes up the volumetric difference of the powder and shot so an excellent crimp can be completed.

Crimp Space Required

Size	Plastic*	Paper*
12 Gauge	1/2"	9/16"
16 Gauge	7/16"	1/2"
20 Gauge	3/8"	7/16"
28 Gauge	5/16"	3/8"
.410 Bore	1/4"	5/16"

Very simply, the quality of the crimp on the finished hull is very much affected by the space taken up by the components column. A rule of thumb relating to this calls for a difference between the level of the shot and the mouth of the open hull. The dimension (for plastic hulls) should be approximately 1/2 inch for 12-gauge and 3/8 inch for 20-gauge. For paper hulls, increase each dimension 1/16 inch for each particular gauge. Remember this is an approximate dimension that may have to be adjusted slightly to suit the method of crimping used on your particular *RCBS* reloading press.

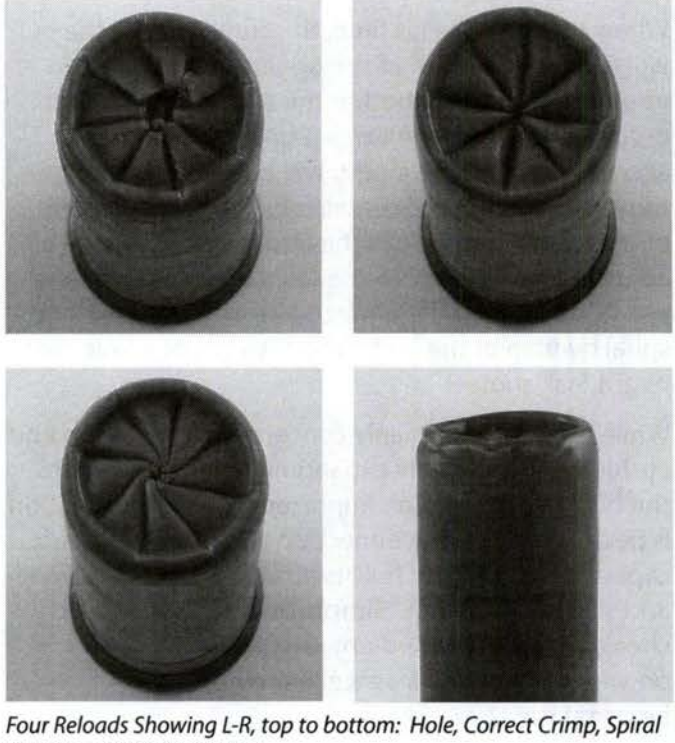
Crimp variations can occur within the same brand and type of hulls

The crimp die on *RCBS* presses is adjusted at the factory to give best overall results on most varieties of hulls. It may be necessary to adjust the die slightly to obtain the best possible crimps on certain types of hulls.

If the crimp is not centered, or if crimp has a spiral configuration or if a wrinkled crimp is evident and if an opening at the center of the crimp is evident, adjust the crimp die according to the directions in the owner's manual. NOTE: When adjusting, move the die up or down a fraction of an inch at a time, testing frequently. A move 1/16th inch or less may be sufficient.

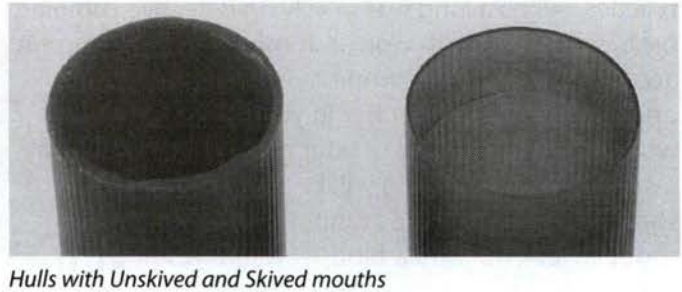
Some plastic hull factory loads are unskived (skived hulls are thinned and tapered inside the mouth) and required a friction or heat seal, at the factory, to close the opening at the center of the crimp. This heat seal will bond the folds of the crimp together and when fired this bonded spot will blow out. When reloaded, these hulls will often show a small hole in the center of the crimp. Usually the hole isn't large enough to leak shot and will cause no harm. The hole can be closed with a few drops of candle wax if desired.

Factory Shell With Heat Sealed Crimp, Reloaded Shell Showing "Hole" and Shell with "Hole" Closed With Candle Wax



Four Reloads Showing L-R, top to bottom: Hole, Correct Crimp, Spiral Crimp, and Wrinkled Crimp

Most factory 8-point crimps have skived mouths and usually are easy to crimp. The skiving process is an additional expense during manufacturing and is usually lacking in the promotional loads. Remember manufacturers have to cut corners to get the cost down on these promotional loads and it is at the expense of the reloadability. The following picture shows the mouth of skived and unskived hulls. Notice the thickness of the unskived hull. The thick and tough mouth doesn't contribute to the reloadability of this type of hull.



Hulls with Unskived and Skived mouths

The thickness of unskived hulls does contribute resistance required to get optimum ignition. However, adequate crimp resistance is obtained with a shallower crimp than on hulls with skived mouths. Sometimes problems are created unless the crimp die is adjusted accordingly. In the following picture, two reloads are shown that have a crushed or bulged tube just ahead of the metal head.

Two Reloads With Crushed Or Bulged Tubes

While this condition can be caused by using a wad that is too tall, it usually results in the crimp die being set to apply a firm (deeper) crimp on a skived mouth hull. *RCBS* presses are adjusted and tested at the factory to give a firm crimp on skived, once-fired hulls.

Crimp variations can occur within the same brand and type of hulls. When a handloader buys, saves or scrounges hulls from different sources and mixes them together, crimp variances can occur. Many hulls are essentially identical but there can be slight internal volumetric differences. Usually, the differences aren't critical but the finished crimps on a mixture of these hulls can be different.

The trend among shotshell manufacturers is to standardize the hulls used in their production. That trend is toward using one-piece plastic hulls (with a metal head of course—at least for now...)

Changes are coming. When oddball crimps start showing up from your favorite hull and recipe, don't blame your press. You could be dealing with an unannounced design change or component variation from the particular lot of hulls and wads that are being reloaded. As with any hull, always be certain of its identity and use the correct reloading recipe.

CHAPTER 6

Non-Toxic Shot—Information, Charts and Tips: Making Sense Of Nontoxic Shot

Some General Thoughts on Handloading Non-Toxic Shotshells

Lead is always going to be the standard when it comes to shot choices, but today we can't always use lead. The fact that lead is toxic is not a new discovery. Remember the "Mad Hatter?" He suffered from lead and mercury poisoning as many people did in the felt-hat industry. The harm that heavy metals can cause to humans has long been recognized and its possible negative effect on the waterfowl that accidentally eat it has been known for a long time. As time passed, it was eventually mandated that shot made of a less toxic material than lead would be used for migratory waterfowl hunting. Gone too are lead-based paint and leaded gasoline.

So, there's not much point arguing the controversial specifics that mandated the use of non-toxic shot, since it is now the law of the land in every major flyway and state, for migratory waterfowl. So far, attempts to challenge those regulations have met with failure, and upland game restrictions could be on the way in the future. Consequently, the most sensible plan of action at present might be to get some non-toxic shot and learn how to reload it. First let's look at a very important comparison question that will impact our shot selection: What is the gravimetric density of non-toxic shot metals compared to lead?

- **Lead is about 11 g/cc**
- **Steel is about 7.86 g/cc.**
- **Bismuth is about 9.60 g/cc**
- **HeviShot is about 12.0 g/cc**

the most sensible plan of action at present might be to get some non-toxic shot and learn how to reload it

Therefore, the density of an individual piece of metal is only one of the ballistic considerations involved in comparing lead and non-toxic shot. We'll take a closer look at each non-toxic metal in this chapter but in the meantime keep the densities in mind.

Primers and Hulls for Non-Toxic Shot

Primers are the same whether reloading non-toxic or lead shot. The most commonly used primers for non-toxic shot are CCI's 209M, Federal's 209A and Winchester's 209. <u>They are not interchangeable in recipes, as pressures would be affected.</u>

Reloading recipes are based on the type hull and wad (we'll get to wads shortly). In 12-gauge, there are three sizes of hulls—2-3/4", 3" and 3-1/2". 2-3/4" hulls come in two versions—internally tapered and straight-walled. Examples of tapered hulls are the Remington STS and the Winchester AA compression formed hull (which has been discontinued in favor of the new HS straight-wall design). Since both are tapered internally from the top, they generally hold smaller loads of shot, with the maximum being 1 oz. to 1 1/8 oz. Due to the taper and less internal volume, it's difficult to get high speeds and keep pressure within limits at the same time. This fact limits the number of good recipes for internal tapered hulls.

There are some very good loads for 2-3/4" hulls—one of the best is Federal's Gold Medal. This hull will hold 1-1/16 oz. to 1-1/8 oz. loads. It's a straight walled hull that crimps well and is tough enough to reload several times. Numerous recipes are available for this hull. Don't get the wrong impression thinking these are light loads. Remember steel is less dense ("weighs less") than lead. A 1 oz. load of steel is close to the same as a 1-3/8 oz. load of lead. In addition, 1-1/8 oz. loads of steel are the same as 1-1/2 oz. magnum loads of lead.

When looking at hulls to reload, the outside of the hull means nothing. It's the internal volume of the hull that makes the difference. The height of the brass makes no difference either. Generally, low brass indicates target hulls (sporting clays, trap and skeet) and high brass designates hunting hulls.

When trying to identify a hull, use a flash-light or hold under a fluorescent light to see inside. Better yet, section a hull with a band saw or hacksaw. You'll see a gray wound paper basewad in some Federal hulls. Remington's basewads are black or yellow, and Winchesters can be found in red, natural (milky white) or yellow plastic. You may not see any basewad at all, on the Federal Gold Medal, Remington STS and Winchester AA compression formed hulls since they are one-piece plastic (with a metal head, of course). All will have different load recipes and are NOT interchangeable. Most all 3" hulls are straight-walled. They will hold up to 1-3/8 oz. of steel shot and load recipes for good velocity are available.

Generally, using 2-3/4" hulls for reloading are less expensive than the 3" ones. Wads are usually less expensive and usually take less shot. The major reason to use 3" hulls is that they have larger capacity and hold more shot at fast speeds—1,500-1,700 fps.

There are many ways to acquire empty hulls. Go to a shooting range for those 2-3/4" hulls. If your buds buy factory-loaded shells, ask them to purchase the ones you want to reload. Obviously if you have to buy them, the cost of your reloads will increase. Most empties of good quality can be reloaded at least 2-3 times. If you have to buy them, the 2-3/4" cost from 3-4 cents and 3" cost 8-10 cents apiece. This can significantly add to the overall cost.

Powder for Non-Toxic Shot

When considering powders to use for reloading, there are several brands. The most common are Alliant, Hodgdon, IMR and Winchester. These companies manufacture a variety of different powders—some for clay targets, some for lead hunting loads, and some suitable for reloading non-toxic shot.

Almost all new recipes for reloading non-toxic shot use Alliant's "Steel" powder. It's large flaked and is a very slow burning powder. Slow burning powder is necessary to keep pressures from getting too high. The introduction of Alliant Steel revolutionized non-toxic shot reloading. It allows us to reload shells with a velocity of 1,500-1,700 fps, yet still keep pressures safe. These speeds are necessary to get maximum terminal ballistics at extended ranges. Always remember—SPEED KILLS.

Because Alliant Steel is large flaked, it's difficult to get accurate drops from a reloading tool. For this reason, a good scale is necessary. When reloading Alliant Steel, powder drops must be within 1/2 grain of the prescribed amount. It's easiest to use a powder scale (see examples in the picture below). Then trickle in the extra amount to get it exact. While this may seem like a slow process, it's necessary due to the pressure increase with too much powder. Handloader's Tip: Mount a small funnel to the edge of your reloading table. Then hold the empty hull under it while dumping the powder from the scale pan. This will help speed up the process and make it less likely that you'll spill powder.

Picture of RCBS Powder Scale—ChargeMaster and Powder Trickler.

When we're talking about shotgun powders, we're talking grains. A specific recipe will have a measured amount in grains. Most recipes require somewhere between 30 and 40 grains of Steel powder in 2-3/4" and 3" shells. A good scale will measure up to 1,000 grains or more, and it's very easy to set the scale to the proper setting. Additionally a scale is an advantage when weighing or checking shot loads.

To summarize, if you are interested in reloading non-toxic shot you'll need Alliant Steel powder and a good powder scale.

Wads and Non-Toxic Shot

Let's look at wads that are suitable for reloading non-toxic shot. You CANNOT use lead wads to reload steel and HeviShot. The pressures would be dangerous. So, what's the difference? Lead and Bismuth are comparatively soft and lead wads can be used to protect the shot from rubbing the inside of the barrel and deforming the pellets. Steel and HeviShot are just the opposite and VERY hard. Special high-density polyethylene wads for steel and HeviShot are used to protect the inside of the barrel from being scratched by the shot. Therefore, these wads are thicker and tougher. Because of their design and limited use compared to lead wads, they're more expensive.

Where can handloader's purchase these wads? Three companies manufacture steel and HeviShot wads. They are:

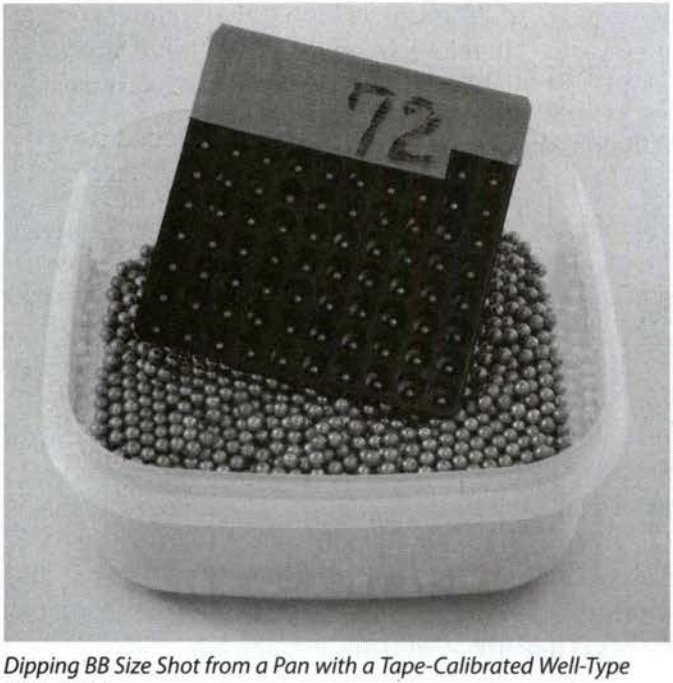
1. Ballistic Products Inc.
2. Precision Reloading
3. Reloading Specialties

All non-toxic reloading recipes are based on the wad. Therefore, it makes a difference where you purchase them. All of the above noted companies have printed and tested recipes that require their wads. Alliant makes Steel powder and recipes are available, based on the wads from these three companies. Primers, and powder can be acquired from other places, but wads must be purchased from these three. Ballistic Products and Precision Reloading sell directly to the customer as well as at retail outlets. Both publish nice catalogs and maintain Internet web sites for purchasing. Reloading Specialties must be bought from a retailer. Some of the more popular wads manufactured by Ballistic Products are shown on the next page in sample packages. Our thanks to Ballistic Products for furnishing the examples.

Non-Toxic Wad Examples

Lastly, what about non-toxic shot? All three of the companies mentioned on the previous page sell non-toxic shot. Prices are about the same, so the major consideration is the cost of freight and handling. Since shipping costs are a function of the weight, and shot is heavy, this additional cost can raise the cost of reloading. High-quality non-toxic shot is expensive to make, therefore it's the highest component cost for handloaders.

Handloader's Tip: When reloading non-toxic shot, accurate weights are required. Since it's almost impossible to drop large diameter shot through your press, alternative methods of measuring are beneficial. One very popular procedure is to use an empty well-type primer tray and tape off enough of the 100 holes so the correct number of pellets fill the remaining holes. Example: A hypothetical load recipe calls for one ounce of BB size shot. First, we weigh out one ounce of BB's on our scale then we count the number of pellets that make up one ounce—this will sometimes vary (usually not very much) depending on the diameter, density and brand of shot. Our hypothetical load weighed count totals 72 BB size pellets. This just happens to be the same number of pellets/ounce as indicated on our steel shot table. Remember, the table shows average counts and due to industrial manufacturing tolerances, the actual count may vary with different production lots of shot. Then we duct tape off 28 holes in our well-type primer tray. Next, we'll dip the primer tray into a pan of shot so that each of the 72 holes are each filled with one pellet. See the picture below for details. This method works best with shot that is large enough to fill a hole in the primer tray but not when two or more pellets are picked up in each hole. Obviously, this method will not work for small sizes of shot or very large buckshot sizes. Small sizes are best weighed on a scale and large diameter pellets can be counted out based on the pellet weight of the load recipe.



Dipping BB Size Shot from a Pan with a Tape-Calibrated Well-Type Primer Tray

If you're interested in reloading non-toxic shot, it's helpful to purchase technical guides from the three companies previously mentioned. All have recipes based on their proprietary wads and all have recipes using many brands of empty hulls in 2-3/4", 3" and 3-1/2".

Another source of technical information are the many interactive bulletin board forums on the Internet for serious handloaders to share experiences, ask questions and just enjoy the fellowship of other handloaders in cyber space. If you're searching for information about fast-steel reloading techniques, migration reports to dog training tips, or just want to have a great time discussing non-toxic shotshell reloading look to these two forums—you'll be glad you did. Go to these web addresses:
http://refugeforums.com
http://www.waterfowler.com

For more than 20 years, shotshell manufacturers and independent researchers have been working to develop suitable substitutes for lead pellets in shotshells. Of the dozens of different non-toxic metals that have been tried, at first, only one has proven ballistically effective and economically suitable—steel.

Section 1 - Steel Shot

Steel shot is made by cutting soft steel wire into short lengths, which are formed, and ground. The shot is then annealed and may be copper or zinc plated to prevent rusting. Wads for steel shot ammunition are molded from high-density polyethylene. They have thick sidewalls to prevent the pellets from contacting the shotgun bore surface. Steel shot ammunition requires large charges of special slow-burning powders to give the large shot column a gentle start but a faster exit from the bore.

Steel Facts

- Steel shot is 30% less dense ("lighter") than lead shot, so it doesn't carry as far, or have the down range terminal ballistics of the same size of lead shot.
- In order to make up for this loss, using shot sizes 2-3 sizes larger is a good alternative when using steel. Handloaders usually prefer to use size 1 or 2 when hunting ducks with steel shot. It provides enough size for good downrange terminal ballistics. It also has enough pellets to have an effective pattern.
- Using a larger size shot means there will be fewer pellets in each load.
- Steel is harder then lead, so it holds a better pattern at extended ranges.
- Steel is more expensive than lead shot.

Let's discus steel shot. Unfortunately, the problem is a complicated one and the solution isn't, at least in many hunter's understanding, entirely clear. A number of questions have been raised about steel shot and controversy has been raging ever since the first steel-shot-only hunting zones were designated in the early 1970's.

While steel is lighter (in density) than lead, it's considerably harder. When lead is used in shells, the velocity that the pellets can be accelerated to is limited, in part, by the amount that they will deform under that force. Steel shot is less likely to become misshapen, even when fired at velocities substantially higher than those reloaded with lead. In fact, steel shot typically achieves muzzle velocities that are at least 100 fps, or more, than those of lead shot. There have been ongoing developments in factory steel shot loads since the 1970's, for the better, in quality and performance. Gone are those early promotional loads with low quality steel shot. Generally, all steel shot available today either as a component for reloading or that is loaded in factory shells is uniform in roundness and diameter. See the photograph below left for what a lot of shot looked like through the 1970's.

Low Quality Steel Shot

Today's factory steel loads run a wide spectrum based on the amount of shot and the velocity it travels. Generally the faster the load, the more it will cost. This is where fast steel shot reloading can save money. When defining fast steel we are talking about 1,500-1,700 feet per second. Reloads moving at these velocities will cost about 1/2 to 2/3 what factory loads of comparable velocity will cost. Handloaders learn quickly that fast-reloaded ammunition will cost about $8 to $9.50 per box at 2007 prices.

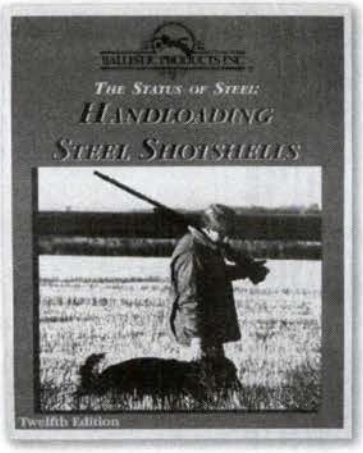
Why should you shoot shells moving at those fast velocities? In ballistics, the density of steel is less ("weighs less") than lead. So it doesn't hold velocity at distances like the old lead loads did. To penetrate a duck or goose, the shot must be traveling at least 600 fps when it makes contact. Therefore, the faster it's going at the start, the longer it takes to slow down. Also the larger size of the shot, the longer it holds a fast velocity. That's why we learned to shoot about two sizes larger of steel shot than lead. Since most duck hunters used #4 & #5 lead, they should shoot #2 & #3 steel. For geese, we should use BB steel if we previously used # 2 lead. BB steel moving at these velocities will penetrate out to 50 yards. They'll go through and through (all the way through) a goose at 40 yards. Therefore, handloader's observe far less crippling if the bird is hit in vital areas with fast steel.

To penetrate a duck or goose, the shot must be traveling at least 600 fps

Even when larger pellets are chosen, reloaded steel shot loads do not equal the performance of lead shot loads at all ranges, simply because a shotshell of a given length is incapable of holding as many of the larger steel pellets. Even though steel shot loads deliver the same amount of energy per pellet, its effective range is considerably less because patterns contains only 65 percent as many pellets. It'll be up to you, the handloader, to determine the most advantageous compromise between the pattern (for more frequent hits) and density (for decisive terminal ballistics when you do hit).

Ballistic Products' ongoing developmental process with steel shot has produced outstanding new data available in their twelfth edition, *"Status of Steel: Handloading Steel Shotshells"* technical guide. Take

advantage of the experience of professionals. Translation: Use only the recipes developed and published by reputable sources. They have the laboratory equipment and have done the research.



Ballistic Products "Status of Steel: Handloading Steel Shotshells"

Section 2 - Bismuth Shot

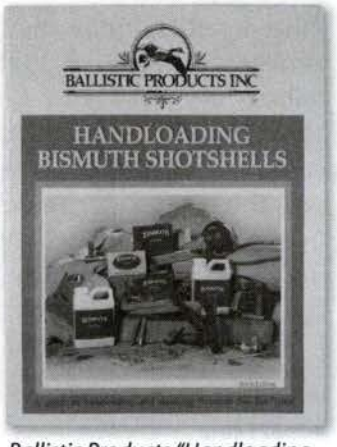
Bismuth Facts:

- Bismuth is an elemental metal next to lead on the periodic table. Bismuth shot is an alloy comprised of bismuth and tin, which almost replicates the density of lead but has the softness of lead.
- Bismuth shot performance is very similar to that of lead.
- Bismuth works well in small gauges.
- Bismuth is safe to use in all shotguns capable of chambering modern cartridges and is safe for contact inside barrels.
- Using #3 is a good choice when hunting with Bismuth.
- Bismuth is said to be "brittle" compared to the other shots.
- A box of bismuth shells is about one and one-half times more expensive than steel.

Bismuth is an elemental metal next to lead on the periodic table.

One limitation of steel shot is the fact that it can damage the barrels of shotguns built prior to its widespread acceptance. This especially holds true for old doubles with extremely thin barrel walls. The introduction of bismuth shot solved that problem, and even though early production runs had a few performance problems, shot now being made of bismuth delivers excellent downrange performance.

Ballistic Products' ongoing developmental process with bismuth shot has produced outstanding new data available in their sixth edition *"Handloading Bismuth Shotshells"* technical guide.



Ballistic Products "Handloading Bismuth Shotshells"

Take advantage of the experience of professionals. Translation: Use only the recipes developed and published by reputable sources. They have the laboratory equipment and have done the research.

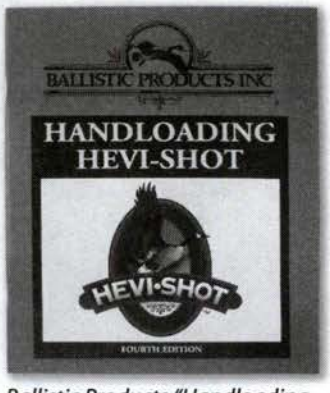
Section 3 - HeviShot

HeviShot Facts:

- HeviShot originated in 1998, by Dr. Darryl Amick, a metallurgist.
- HeviShot pellets are manufactured with a tungsten alloy, nickel and iron to a density of 12 grams per cc (cubic centimeter).
- In early 2006, Environmetal, the manufacturer of HeviShot pellets, introduced a new alloy that has a density of 13 grams per cc and a much more uniform and rounder configuration than earlier manufactured pellets.
- HeviShot pellets must be reloaded with a specially manufactured wad of high-density polyethylene, which prevents pellet contact with the barrel that can damage the barrel causing scoring and pitting.
- HeviShot is not prone to deformation.
- Hevi-Shot should be used only in shotguns manufactured to handle steel shot. If in doubt, contact the manufacturer for its recommendation.
- HeviShot is more expensive than steel or bismuth shot.
- The general rule when selecting Hevi-Shot pellet size is to use the same or one size smaller than with lead shot or two to three sizes smaller than steel shot.

Smaller pellet size means more pellets per round generating greater terminal performance. Statistically, this considerably increases the probability of a clean kill, thus enabling longer shots with a greater certainty of a kill.

Ballistic Products' ongoing developmental process with HeviShot has produced outstanding new data available in their fourth edition, *"Handloading Hevi-Shot"* technical guide. Take advantage of the experience of professionals. Translation: Use only the recipes developed and published by reputable sources. They have the laboratory equipment and have done the research.



Ballistic Products "Handloading HeviShot"

Steel Table of Shot Sizes and Information

Weight Ounces		3/4	7/8	15/16	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2
Weight Grains		328	383	410	438	492	547	602	656	711	766	820	875
Loads Per Lb.		21	18	17	16	14	13	12	11	10	9	9	8
Steel Shot Size	Diameter In.	Approximate Number Of Steel Shot Pellets Per Load											
00 Buck	0.330	7-8	8-9	9-10	10	11-12	12-13	13-14	15	16-17	17-18	18-19	20
1 Buck	0.300	9-10	11-12	12-13	13	14-15	16-17	17-18	19-20	21-22	22-23	20-21	26
4 Buck	0.240	19-20	22-23	24-25	26	29-30	32-33	35-36	38	42-43	45-46	45-46	52
F (TTT)	0.220	30	34	37	40	45	50	54	60	62	68	73	78
T	0.200	39	46	49	52	58	65	72	78	81	91	98	104
BBB	0.190	46	53	58	62	70	77	83	93	97	105	113	120
BB	0.180	54	64	67	72	81	90	100	108	112	128	137	146
1	0.160	77	89	97	103	116	129	140	154	161	179	191	204
2	0.150	94	109	117	125	141	156	171	187	195	217	233	248
3	0.140	118	134	143	158	178	197	210	237	247	268	287	306
4	0.130	144	166	180	192	216	240	261	288	300	333	356	380
5	0.120	182	206	228	243	273	304	324	364	380	413	442	472
6	0.110	236	273	295	315	354	394	428	472	492	545	584	623
7	0.100	316	369	395	422	475	527	580	633	659	739	791	844
8	0.090	411	480	396	548	617	685	754	822	891	959	1028	1096
9	0.080	619	722	514	825	928	1031	1134	1238	1341	1444	1547	1650

Author's Note: These are average counts and due to industrial manufacturing tolerances, your actual count may vary with different production lots of shot.

Bismuth Table of Shot Sizes and Information

Weight Ounces		1/2	11/16	3/4	7/8	15/16	1	1 1/16	1 1/8	1 3/16	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/4	2 1/2
Weight Grains		219	301	328	383	410	438	465	492	520	547	602	656	711	766	820	875	984	1094
Loads Per Lb.		32	23	21	18	17	16	15	14	13	13	12	11	10	9	9	8	7	6
Bismuth Shot Size	Diameter In.	Approximate Number Of Bismuth Shot Pellets Per Load																	
BB	0.180	26	35	39	46	49	52	55	59	62	65	72	78	85	91	98	104	117	130
2	0.150	43	58	64	74	80	85	90	96	101	106	117	128	138	149	159	170	191	213
4	0.130	60	81	89	104	112	119	126	134	141	149	164	179	193	208	223	238	268	298
5	0.120	94	128	141	165	176	188	200	212	223	235	259	282	306	329	353	376	423	470
6	0.110	120	163	180	210	225	240	255	270	285	300	330	360	390	420	450	480	540	600
7 1/2	0.095	189	260	283	330	354	378	402	425	449	473	520	567	614	662	709	756	850	945

Author's Note: These are average counts and due to industrial manufacturing tolerances, your actual count may vary with different production lots of shot.

Hevi•Shot Table of Shot Sizes and Information

Weight Ounces		3/4	7/8	15/16	1	1 1/16	1 1/8	1 3/16	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2
Weight Grains		328	383	410	438	465	492	520	547	602	656	711	766	820	875
Loads Per Lb.		21	18	17	16	15	14	13	13	12	11	10	9	9	8
HeviShot Shot Size	Diameter In.	Approximate Number Of HeviShot Shot Pellets Per Load													
BB	0.180	39	46	49	52	55	59	62	65	72	78	85	91	98	104
2	0.150	64	74	80	85	90	96	101	106	117	128	138	149	159	170
4	0.130	89	104	112	119	126	134	141	149	164	179	193	208	223	238
6	0.110	180	210	225	240	255	270	285	300	330	360	390	420	450	480
7 1/2	0.100	283	330	354	378	402	425	449	473	520	567	614	662	709	756
9	0.080	429	501	536	572	608	644	679	715	787	858	930	1001	1073	1144

Author's Note: These are average counts and due to industrial manufacturing tolerances, your actual count may vary with different production lots of shot.

Sample Seven-Pound Container of HeviShot

CHAPTER 7

Choosing a Load (Recipe)

Some General Thoughts on Handloading Shotshells

It is our observation that the one-piece, mostly plastic hull is best for the beginning handloader. Neither the brass height nor whether it is wine-colored, green, blue or red makes little difference. These hulls take more abuse, are less susceptible to the elements and generally last longer. Which will last the longest? Take your pick. There are handloaders who will swear by each brand and at the same time swear at the others. We have often been asked, "What has Brand-X done to their hulls? The box I had last year lasted for about 15 reloads and the ones I have now are splitting after the fifth or sixth firing." The answer can be very involved. For one thing, the handloader who is loading 12 gauge 1 ounce loads at 6,500 psi will find his hulls last longer than the handloader who is loading 1-1/2 ounce magnums at 10,500 psi (Everyone knows that Grandma's car lasted longer because she never drove it over 40 miles per hour.) The strength of the load is a determining factor on the hull's life span. There are other variables, too. A single barrel, double barrel, over-under, etc., will be easier on hulls than will a semi-auto shotgun. A firm deep crimp will wear out a hull faster than a moderate crimp. A particular lot of plastic used last week by the manufacturer will last longer than the lot used this week. We have used all colors and, generally, they are all excellent for reloading, but no color has an unlimited life span and lot-to-lot variations will provide both extremes of longevity. If you're like me, you already have a favorite target and or hunting load or loads.

the one-piece, mostly plastic hull is best for the beginning handloader

Another important question soon arises—"How do I know when my hulls are worn out?" Generally, a hull is worn out when the crimp will not provide the proper resistance for efficient powder combustion. In earlier chapters we discussed reloading hulls too many times and the problems that resulted. We have often heard handloaders say that their nearly "worn-out" hulls are used for heavy hunting loads and the "good" hulls are saved for target shooting. Remember that after a hull is reloaded several times the crimp area becomes weak. When the handloader uses a heavy high speed or magnum load the recipe will call for a slow burning powder that needs good crimp resistance to be ignited properly. If "worn-out" hulls are used in this situation, the handloader risks the chance of poor ignition, especially in cold weather, and, at the least, is not getting the desired performance that could have been obtained by using "good" hulls.

A handloader can produce shotshells that are as good as he wants if he uses best quality components. Occasionally a target shooter will complain that he cannot get the good tight, patterns with his reloads that he gets with factory loads. Target loads are the finest performing shotshells available from ammunition manufacturers. The manufacturer uses its best components to produce these shells. The shot is usually extra-hard (magnum grade), especially in trap loads. Handloaders aren't going to get a tight pattern using bargain-basement, reclaimed or homemade shot that was bought on special for $24.95 per bag. Superior reloads result from reloading superior components. If a handloader skimps on components to save that last nickel a box, top quality reloads will not be realized.

Choosing the Load

Choosing a load for someone else is like recommending a girl friend—kinda personal and not always successful. After a shooter is sold on the concept of handloading, the first major question is "What do I load?"—meaning "Which recipe do I use?" This was an easy problem several years ago during reloading clinics that I conducted in several states. I just suggested the recipe that I used for whatever purpose being considered. Gradually the same locations were visited again in later years and I got an ear full from a few people. The conversation went something like—"Those weak loads wouldn't... !"

The answer was not to recommend what worked for me but to ask the novice handloader what box of factory loads he would purchase if he weren't going to reload. For the majority of shooters, this is easy. The shooter would then identify the brand and type of factory load that had been used successfully in the past.

So, what we do now is duplicate the factory load. First, we determine the specifications of this factory load. Some of the information is on the box and some of it isn't. Let's use a model load as an example of how to identify the "specs."

Our beginning handloader wants a dove-hunting load, and, in the past, has always purchased factory loads in 12-gauge 3-1/4 dram equivalent with 1 ounce of shot. These are manufactured by all major shotshell manufacturers.

Let's look at the information on the box and analyze the factory loading. Most shooters are generally familiar with the shot size, which is a personal choice. The amount of shot loaded into each shell in our example is 1 ounce. The only other information guide is the 3-1/4 dram equivalent listing.

Dram Equivalent

When Black Powder was the only thing available, it was measured in drams. Today's Smokeless powder is measured in grains. There is a monumental difference in the two. To measure smokeless powder in drams, the chamber pressure would soar, and probably would, have GRAVE results. I neither know of, nor have heard of, any formula to convert drams to grains or vice versa. You need to know the velocity and shot weight of the load you want to duplicate. Some manuals will list drams and their associated velocity some don't. Say, for example, the load you want to duplicate has a 3-1/4 drams and 1 ounce shot; the velocity would be 1,290 fps (feet per second).

A dram is a measure for black powder (today's smokeless powder is measured in grains). It took a given number of drams to achieve a given velocity. When smokeless powder began to replace black powder, shooters wanted to be able to compare their smokeless powder loads with their original black powder loads. There is, however, no formula to convert drams to grains or vice versa. The term "dram equivalent" evolved. Dram equivalent is an indication of the velocity of a given amount of shot in a shell loaded with smokeless powder. A scheme was devised to relate the velocity and shot weights of commercial loads to the dram system that had previously been used with black powder.

The dram system has, for the most part, outlived its usefulness. Most shooters do not know what it means, pay little attention to it or care. Those who actually do know, have no use for the term dram equivalent at all. The knowledgeable shooter thinks in terms of a given weight of shot and the velocity required to attain satisfactory results at a given range. Manufacturers would do every shooter a favor by devising a new system.

Browning Arms Co. attempted to do this in the early 70's when its line of shotshell ammunition was introduced. Browning took in to consideration both velocity and weight of the shot charge and rated each load accordingly. The following chart from a box of Browning factory loads gives a cross reference of its "Power Rating" and the dram equivalent system.

Browning's new Power Rating System is based on shot shell energy, taking into consideration both velocity and weight of the shot charge. And, depending upon shot size and choke, this Power Rating can be translated into effective range.

For example, with No. 4 shot you can expect better long range effectiveness from a 55 Power than from a 45 Power shot shell and so on down the Power scale. On the other hand, a lower Power Rating does less damage to the game, is more pleasant to shoot, costs less, and is often more ideal for smaller game and birds taken over dogs or at close ranges.

A hunter may often find it desirable to use a lower Power shell for his first shot and higher Power shells for his follow-up. The chart below identifies popular loads according to their Power Rating.

POWER RATING INDEX
Each load below is identified by drams equivalent and ounces of shot

GAUGE	60	55	50	45	40	35
12 Gauge	Max. x 1⅞*	Max. x 1½**	Max. x 1¼	3¼ x 1⅛	3¼ x 1	
12 Gauge	Max. x 1⅞*					
16 Gauge			Max. x 1¼**	3¼ x 1⅛	2¾ x 1⅛	
20 Gauge				Max. x 1¼*	Max. x 1	2½ x 1
20 Gauge				Max. x 1⅛**		2½ x ⅞
28 Gauge						All Loads
410 Gauge						All Loads

*3" Magnum Loads **2¾" Magnum Loads

Copyright © 1972 Browning

Chart From A Box Of Browning Shells

The following chart shows the dram equivalent table according to industry standards and the velocity of each load. Included is a listing of the brands that Federal, Remington and Winchester load within each dram equivalent category. Check this chart and locate your favorite target or field load, then make a note of the velocity and amount of shot in ounces.

Let's find our 3-1/4 dram equivalent 1-ounce example load in Industry Standards of Factory Shotshell Load Chart shown highlighted in bold print below:

Industry Standards of Factory Shotshell Loadings

Gauge	Shell Length	Dram Equivalent	Shot Weight	Velocity +/- 90 fps	Max. Average Pressure (psi)
10	3–1/2" Shells	4 1/4	2	1,210	11,000
10	3–1/2" Shells	4 1/2	2 1/4	1,210	11,000
12	2–3/4" Shells	Skeet	1	1,145	11,500
12	2–3/4" Shells	2 3/4	1	1,180	11,500
12	2–3/4" Shells	-	1	1,145	11,500
12	2–3/4" Shells	Skeet	1	1,180	11,500
12	**2–3/4" Shells**	**3 1/4**	**1**	**1,290**	**11,500**
12	2–3/4" Shells	Skeet	1 1/8	1,145	11,500
12	2–3/4" Shells	3	1 1/8	1,200	11,500
12	2–3/4" Shells	Skeet	1 1/8	1,200	11,500
12	2–3/4" Shells	3 1/2	1 1/8	1,310	11,500
12	2–3/4" Shells	3 1/4	1 1/8	1,255	11,500
12	2–3/4" Shells	3 1/4	1 1/4	1,220	11,500
12	2–3/4" Shells	3 1/2	1 1/4	1,275	11,500
12	2–3/4" Shells	3 3/4	1 1/4	1,330	11,500
12	2–3/4" Shells	3 3/4	1 1/2	1,260	11,500

(continued)

Industry Standards of Factory Shotshell Loadings Continued

Gauge	Shell Length	Dram Equivalent	Shot Weight	Velocity +/- 90 fps	Max. Average Pressure (psi)
12	2–3/4" Shells	4	1 1/2	1,315	11,500
12	3" Shells	3 3/4	1 3/8	1,295	11,500
12	3" Shells	4	1 5/8	1,280	11,500
12	3" Shells	4	2	1,175	11,500
12	3" Shells	4	1 7/8	1,210	11,500
12	3–1/2"	4 1/4	2 1/4	1,150	14,000
16	2–3/4" Shells	2 1/2	1	1,165	11,500
16	2–3/4" Shells	Skeet	1	1,200	11,500
16	2–3/4" Shells	2 3/4	1	1,220	11,500
16	2–3/4" Shells	2 3/4	1 1/8	1,185	11,500
16	2–3/4" Shells	3	1 1/8	1,240	11,500
16	2–3/4" Shells	3 1/4	1 1/8	1,295	11,500
16	2–3/4" Shells	3 1/4	1 1/4	1,260	11,500
20	2–3/4" Shells	Skeet	7/8	1,200	12,000
20	2–3/4" Shells	2 1/2	7/8	1,210	12,000
20	2–3/4" Shells	2 1/2	1	1,165	12,000
20	2–3/4" Shells	2 3/4	1	1,220	12,000
20	2–3/4" Shells	2 3/4	1 1/8	1,175	12,000
20	3" Shells	3 1/4	1 1/8	1,285	12,000
20	3" Shells	3 1/2	1 3/16	1,295	12,000
20	3" Shells	3	1 1/4	1,185	12,000
28	2–3/4" Shells	1 3/4	5/8	1,160	12,500
28	2–3/4" Shells	Skeet	3/4	1,200	12,500
28	2–3/4" Shells	2 1/4	3/4	1,295	12,500
28	2–3/4" Shells	2 1/4	7/8	1,250	12,500
28	2–3/4" Shells	2 1/4	1	1,205	12,500
.410 Bore	2–1/2" Shells	Skeet	1/2	1,200	12,500
.410 Bore	2–1/2" Shells	Max.	1/2	1,200	12,500
.410 Bore	3" Shells	Max.	11/16	1,135	12,500

We note that the shot weight in our example is 1 ounce and the velocity is 1,290 fps. This is our load reference for the recipe. Now we can reference the desired load in the data section, but first we must identify the hull we are going to reload since we have recipes for Federal, Remington and Winchester hulls that will give us a 1,290 fps, 1 oz., load. Recipes for different brands of hulls are not interchangeable. For example, depending on how we might reload three different hulls, we could choose any of the following recipes:

Using a Federal Gold Medal hull we might choose:
(Page 142, Data Section) 1 oz. Fed. 209A 22.0 gr. American Select Fed. 12SO 1,290 fps 8,500 psi

Using a Remington STS hull we might choose:
(Page 190, Data Section) 1 oz. CCI 209M 22.0 gr. Green Dot Rem R12L 1,290 fps 9,100 psi

Using a Winchester Double-A hull, either compression formed or HS we might choose:
(Page 232, Data Section) 1oz. CCI 209M 21.5 gr. Green Dot Win WAA12(white) 1,290 fps 9,900 psi

We aren't limited to these three recipes. The data section lists several combinations, depending not only on which hull we reload but also which brands of primers, powder and plastic wads we choose to use.

Our choice of components usually is affected by what is available in our local area. Check with your local sporting goods dealer and discuss your requirements with him. Generally, handloaders will choose components that are readily available on a continuing basis.

Before we reload, let's double-check our reloading press, components and recipe.

DOUBLE CHECK LIST

Before any actual reloading, the handloader should be able to answer the following questions "YES."

1. **Have the hulls to be reloaded been positively identified?**
2. **Have all hulls been checked for defects and found to be in good condition with no foreign material inside?**
3. **Have components been assembled, with no substitutions, according to the chosen recipe? (primer, powder, wad and shot.)**
4. **Has the correct starting powder bushing been selected from the RCBS bushing chart (inside back cover)? ("Check weights" of thrown powder charges will be taken during the reloading sequence.)**
5. **Has the correct shot bushing been selected?**
6. **Has the correct crimp starter been installed in the reloading press?**
7. **Has the "TEN COMMANDMENTS OF SHOTSHELL RELOADING" chart been posted in the reloading area?**
8. **Has the handloader complied with the "TEN COMMANDMENTS OF SHOTSHELL RELOADING?"**
9. **Are safety glasses available to wear during actual reloading?**

If the answer to each question in YES, then read, and understand, the instruction manual for your reloading press and follow the instructions for set-up and reloading procedures.

Good Luck and Good Shooting!

CHAPTER 8

Introduction to the Loading Data

All shotshell loading data in this book have been supplied by the major powder manufacturers and represent the best reloading information available.

There are four major sections regarding the use of powder manufactured by Alliant, Hodgdon, IMR and Winchester. Each section contains valuable information that has been reprinted from the manufacturers' data guide. The author acknowledges the cooperation and gracious consent to reprint the following information for this important reason: Each powder manufacturer is in the best position to prepare information and reloading data for its products.

Handloaders using data from this handbook should read this chapter thoroughly and pay particular attention to the section regarding information on the choice of powder that will be used.

⚠ SAFETY WARNING—THE PRACTICE OF HANDLOADING AND THE USE OF RELOADED AMMUNITION CAN BE HAZARDOUS. HANDLOADING SHOULD BE DONE ONLY BY COMPETENT PERSONS IN STRICT COMPLIANCE WITH INSTRUCTIONS AND DATA CONTAINED IN CURRENT MANUALS AVAILABLE FROM MANUFACTURERS OF RELOADING EQUIPMENT, COMPONENTS AND SMOKELESS POWDER. FAILURE TO COMPLY WITH THESE DATA AND INSTRUCTIONS MAY RESULT IN INCORRECTLY RELOADED AMMUNITION AND CAUSE SERIOUS PERSONAL INJURY AND/OR DEATH TO THE INDIVIDUAL OR BYSTANDERS. THIS HANDBOOK, "THE HANDBOOK OF SHOTSHELL RELOADING," IS OFFERED AS AN AID TO HANDLOADERS TO BE USED BY THEM AT THEIR OWN DISCRETION AND RISK. READ THIS HANDBOOK THOROUGHLY BEFORE RELOADING.

RELOADED AND FACTORY AMMUNITION MUST BE USED ONLY IN GUNS HAVING MODERN STEEL BARRELS ORIGINALLY CHAMBERED FOR THE GAUGE AND LENGTH OF SHELL SPECIFIED ON THE BARREL. THE USE OF SHELLS LONGER THAN THE CHAMBER CAN CAUSE THE BARREL TO BURST AND POSSIBLY OTHER GUN DAMAGE, CAUSING SERIOUS INJURY TO THE INDIVIDUAL OR BYSTANDERS. IT IS DANGEROUS TO USE ANY GUN EXCEPT ONE THAT FUNCTIONS PROPERLY, IS IN GOOD CONDITION AND IS DESIGNED FOR USE WITH SMOKELESS POWDER. IF ANY DOUBT EXISTS, CHECK WITH THE MANUFACTURER.

BEFORE LOADING THE GUN, MAKE SURE THE BARREL IS CLEAR AND NOT OBSTRUCTED IN ANY WAY. KEEP THE BARREL FREE OF ANY OBSTRUCTION, INCLUDING A SMALLER GAUGE SHELL, WHICH CAN DROP THROUGH THE CHAMBER AND LODGE IN THE BARREL. IF ANOTHER SHELL IS FIRED, A DANGEROUS BARREL BURST MAY OCCUR CAUSING SERIOUS INJURY TO THE INDIVIDUAL OR BYSTANDERS. IF THE GUN FAILS TO FIRE, A MECHANICALLY DELAYED FIRING MAY OCCUR OR THE GUN MAY FIRE WHEN OPENED CAUSING SERIOUS INJURY TO THE INDIVIDUAL OR BYSTANDERS. KEEP THE GUN POINTED IN A SAFE DIRECTION, WAIT 30 SECONDS, AND CAREFULLY UNLOAD, AVOIDING EXPOSURE TO BREECH.

WEAR PROPER HEARING PROTECTION, AS REPEATED EXPOSURE TO GUNFIRE CAN DAMAGE HEARING. WEAR SHOOTING GLASSES TO PROTECT EYES FROM FLYING PARTICLES.

ALL LOADING DATA (RECIPES) AND RELATED INFORMATION IN THIS HANDBOOK ARE BASED ON RESULTS OBTAINED IN THE ALLIANT, IMR, HODGDON AND WINCHESTER BALLISTICS LABORATORIES USING THE COMPONENTS AS LISTED. THIS DATA AND INFORMATION ARE OFFERED AS AN AID TO HANDLOADERS TO BE USED BY THEM AT THEIR OWN DISCRETION AND RISK WHILE OBSERVING SAFE RELOADING PRACTICES AT ALL TIMES. ALL DATA AND INFORMATION IN THIS HANDBOOK ARE DEEMED TO BE ACCURATE AND RELIABLE. SINCE RCBS, ITS OFFICERS, EMPLOYEES AND AGENTS, OR KENNETH W. COUGER HAVE NO CONTROL OVER THE MANUFACTURING OF RELOADING EQUIPMENT, COMPONENTS AND SMOKELESS PROPELLANTS, EXCEPT AS LISTED HEREIN, THE CHOICE AND CONDITION OF EQUIPMENT, COMPONENTS AND SMOKELESS PROPELLANTS, THE CIRCUMSTANCES UNDER WHICH THE EQUIPMENT, COMPONENTS AND SMOKELESS PROPELLANTS ARE USED AND ASSEMBLED, THE FIREARMS IN WHICH RESULTING AMMUNITION IS USED, AND RESULTS OBTAINED THROUGH ITS USE, NO WARRANTIES ARE EXPRESSED OR IMPLIED FOR ANY ERRORS AND/OR OMISSIONS IN DATA AND INFORMATION. WE SPECIFICALLY DISCLAIM ANY AND ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL LIABILITY FOR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER. THE HANDLOADER INDIVIDUAL ASSUMES THE RISK OF SAFE RELOADING PRACTICES. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR DEATH TO THE INDIVIDUAL OR BYSTANDERS.

Section 1 - Alliant Powder

Information Regarding The Use Of Alliant Powder

Alliant Powder, New River Energetics
Radford, VA 24143-0096

SAFETY WARNING: THE SHOTGUN SHELL LOADING DATA IN THIS BOOKLET IS ONLY TO BE USED AS LISTED. NON-TOXIC SHOT CANNOT BE SUBSTITUTED FOR LEAD SHOT RELOADING DATA.

Beginner Reloading

Just getting started? Interested in learning how to reload your own ammunition? This section is designed to help you get the most out of your first reloading experience.

Before You Begin

Millions of men and women reload ammunition as a hobby and as a cost-savings measure that allows them to enjoy shooting more often. You should always reload for the safest and most accurate loads on the shooting line. Always remember that to become or to continue to be a safe reloader, **you must be careful at all times.**

Safety Recommendations

As a reloader, remember that you are dealing with explosive materials; powder and primers, that can explode or burn if misused, causing property damage, serious injury - even death.

to continue as a safe handloader, you must be cautious and careful

Reloading Books & Instruction

Protect yourself by seeking out certified reloading instruction courses and studying books that describe safe reloading techniques in detail. When using smokeless powders, use only the exact type and quantity described at alliantpowder.com. And always store and use your smokeless powders in accordance with the guidelines listed in the Reloading Safety area of this Handbook.

Powder Warnings

NEVER substitute smokeless powder for black powder or for black powder substitutes.

NEVER mix together any two powders, regardless of type, brand, style or source.

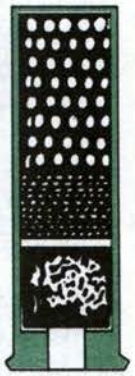
NEVER use the data on this site for any other powders, even if advertised "similar to Bullseye" or "burns the same as Red Dot," etc.

How Ammo Works

Any understanding of reloading starts with a comprehensive understanding of ballistics. Below is a summary of the basic parts of cased ammunition (rifle and handgun cartridges), the basic parts of shotshell ammunition and the basic physics of firing ammunition. You should also visit your local library and book retailer for more on the science of ballistics.

Parts of a Shotshell

Case:



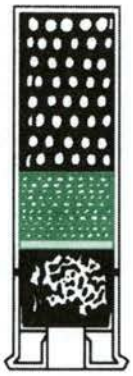
A plastic cylinder with a metal base that contains the shot, wad, powder and primer. Shotgun shooters also refer to a shothshell case as a hull. Hulls have two major parts, the head and the tube. The head is typically made of brass and houses the primer and, sometimes, a base wad. Tubes come in various designs, sizes and lengths and are crimped at the mouth in either 6 or 8 point folds. Hull sizes correspond with shotgun bore sizes, which are based on the gauge unit of measure. The gauge of a shotgun is equal to the number of lead balls (sized the same diameter as the shotgun bore) it would take to weigh one pound. So it would take 20 lead balls the size of a 20 gauge shotgun bore to weigh one pound. (The .410 is the only exception, which is measured in inches.) Shotguns come in the following bore sizes: 10 gauge, 12 gauge, 16 gauge, 20 gauge, 28 gauge and .410.

Shot:

Several lead pellet projectiles that are propelled from the front end of the shell towards a target. Shot is usually made of lead, but can also be made of steel or be plated with hard metal. Shot comes in varying shapes, sizes and degrees of hardness. Typically, shot will be used according to the ammunition purpose, bore size and desired shot pattern. Lead shot comes in soft, hard and x-hard grades. Fewer, larger-sized pellets, called buckshot, are designed for use with large fur-bearing game, large waterfowl and turkey hunting. Buckshot loads typically have a smaller payload of shot (6 to 10 pellets). Smaller-sized "birdshot" pellets, including #4, #5 and higher, are tiny pellets used for hunting small game and fowl. Birdshot payloads can have dozens of pellets. Reloaders typically use #7-1/2s or bigger for trapshooting and #9s for skeet. Shot can also be a single rifled or sabot "slugs."

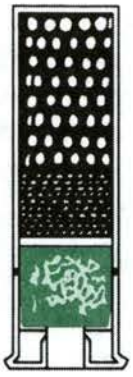
Slugs and buckshot require unqiue reloading procedures and crimping. Be sure to follow buckshot and slug data exactly as listed in the data tables.

Wad:



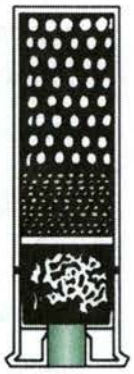
A plastic or fiber support component placed between the powder and the shot to protect the shot at ignition and propel it uniformly down the barrel. Wads are one-piece columns with a shot cup, collapsible mid-section and an "over-powder" or "obturating" cup. The wad also: 1) helps contain the shot; 2) seals off the shot payload from the ignition gases to prevent deformation and 3) protects the barrel from lead build-up. There are countless designs for wads, most designed to accommodate desired payload and case characteristics.

Smokeless Powder:



Combustible propellant that sits between the wad and the primer in the case. On detonation, the ignited powder rapidly decomposes into a hot, forceful gas that instantaneously expands and propels the wad and wad payload out of the gun bore. The chief ingredient of single-base powder is nitrocellulose. Double-base formulas use nitroglycerin and nitrocellulose. Modern powders are a derivative of guncotton (nitrocellulose), which was developed and used in the 1800s in lieu of black powder because it produced less smoke and flash on ignition. To achive certain burn rates, powder grains come in different shapes and sizes. They can also have different surface coatings. Alliant Powder grains are made using an extrusion process and come in cylinder or disc shapes.

Primer:



A small, self-contained metalic ignition cap at the center of the base of the ammunition case. When struck by the firing pin, the primer combusts, sending sparks through the flashhole of the case, and ignites the powder charge. In shotshells, primers are cylinder-shaped components composed of ignition chemicals, a cup and an anvil. When reloading, spent primers are removed from the primer pocket and replaced with a whole new primer.

Physics of Firing Ammunition

Firing a shotshell is a physical and chemical chain reaction that takes place in a split second.

- The firing pin strikes the primer, igniting the primer compound.
- The flame ignites the powder charge, which burns rapidly, creating a high volume of gases.
- The gases under pressure will expand to the muzzle, seeking the least resistant path to expansion.
- Because the wad and shot are between the gases and the muzzle, the gases push the shot and wad along.

Reloading Safety

Part of the responsibility of being a reloader includes the safe handling, storage and use of gun powder. It is vital that you practice all the recommended precautions before, during and after the use of our products. Below are links to some of the methods we advise you follow when handling gun powder.

General Safety Guidelines Important Safety and Health Precautions

To perform in a gun, powders must ignite easily and burn rapidly. These characteristics require use of common sense to avoid accidents.

YOU MUST OBSERVE THESE PRECAUTIONS:

1. **DO NOT** smoke when reloading.
2. **DO NOT** use spark-producing tools.
3. **DO NOT** mix powders of different kinds.
4. **DO NOT** leave powder where children can get it.
5. **DO NOT** try to load when distracted.
6. Avoid an open fire or working near spark-producing machinery.
7. Pour out only the amount of powder needed for immediate work.
8. Check the powder measure each time it is used. Make sure the settings have not been accidentally changed. Check-weigh "thrown charges" frequently.
9. Clean up any spilled powders. Use a brush and dustpan; do not use a vacuum cleaner. Dispose

of spilled powder as described in the SAAMI pages of this Guide.

10. Store powder only in its original container, which was carefully designed for this usage. DO NOT REPACKAGE. Do not purchase or accept any Alliant powder not in its original, FACTORY-SEALED container.
11. Be sure the powder container is completely empty before discarding. Do not use the container to store other powders or materials, or for any other purpose.
12. Always keep in mind that smokeless powder is an explosive material and highly flammable. It should always be stored and handled in such a way as to avoid impact, friction, heat, sparks, or flame.
13. Wear safety glasses when reloading.
14. This material contains nitroglycerin. Inhalation, skin contact, or ingestion may cause severe headache, nausea, and lowering of bloodpressure.

Therefore, The Following Precautions Must Be Observed When Handling Powders:

1. Do not take internally. In case of ingestion, cause vomiting. Call a physician.
2. Avoid contamination of food, beverages, or smoking materials.
3. Avoid breathing dust. Ensure adequate ventilation during handling.
4. Wash thoroughly after handling and before eating, drinking, or smoking.
5. Do not carry powder in clothing.

You Must Also Always Remember:

1. Establish a routine for reloading. It will result in more uniform loads and less chance of error.
2. Some primers are more powerful than others (they produce more gas at a higher temperature). Use only the primers specified herein.
3. Shotshell wads differ in their sealing ability. Use only the load combinations specified herein.
4. If you use cast bullets, their diameter, hardness, lubrication, and crimp will affect the ballistics.
5. With the exception of data in the "Non-Toxic Shotshell" reloading data section, the shotshell loads in this booklet are for use with LEAD SHOT ONLY!
6. Use only the brands of powder and components shown in our tables. Do not substitute other types.
7. Discharging firearms in poorly ventilated areas, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to cause birth defects, reproductive harm, and other serious physical injury. Have adequate ventilation at all times. Wash hands and face thoroughly after handling and before coming in contact with food, chewing materials, and smoking material.

Precautions

There is a sentence in a pilot's flight manual that reads, "When you enter the cockpit of this aircraft, you become part of a system over which you have control - both in terms of operation and safe handling. You are the only one that can make the system safe or unsafe."

The same is true of shooters, whether hunters, target shooters or casual weekend plinkers. From the time they pick up a firearm, shooters becomes a part of a system over which they have complete control. They are the only part of the system that can make a gun safe - or unsafe.

Hunting and target shooting are among the safest of all sports. This information is intended to make them even safer - by re-emphasizing and reaffirming the basics of safe gun handling and storage and by reminding each individual shooter that he or she is the key to firearms safety.

Please read this booklet carefully and follow the safety procedures outlined. Firearms safety is up to you. Make no mistake about it.

Know Your Gun - Read Your Instruction Manual

1. Don't Rely on Your Gun's Safety. Treat Every Gun as if it Were Loaded and Ready to Fire

The safety on any gun is a mechanical device that serves as a part of a complete system of safe gun handling. The safety is not intended to serve - nor can it possibly serve - as a substitute for common sense or safe gun handling.

For example, never pull the trigger on a firearm when the safety is in the "safe" position or anywhere in between "safe" and off. It is possible that the gun could fire anyway, and it is also possible that the gun could fire later when you release the safety - without

your ever touching the trigger again. Always place the safety completely in the "fire" or "safe" positions. Never in between. Half - safe is unsafe. Don't play with your safety, putting it on and off. Leave it on until you are absolutely ready to fire. You and the safe gun handling procedures you have learned are your gun's primary safeties. To rely entirely upon a mechanical device is unsafe. Use your safety safely.

2. Never Cross a Fence, Climb a Tree or Jump a Ditch With a Loaded Gun

There are times during nearly all hunting trips when common sense and the basic rules of firearms safety will require you to unload your gun for maximum safety.

Anytime there is an added risk that you might lose your balance and drop or lose control of your gun, you should unload. Before climbing a fence or crossing a stream are perfect examples. If you need to climb a slippery hill and certainly if you are going to climb a tree to hunt from a tree stand, you should unload first. Then, should you lose your balance and lose control of your gun, you will not jeopardize your safety or the safety of your companions by dropping a loaded gun which could discharge.

The chances of missing a shot at game by unloading at such times are slim and more than offset by the added safety of unloading.

3. Never Load or Carry a Loaded Gun Until You Are Ready To Use It

One of the cardinal rules of shooting safety is to load your gun only when ready to use it - and to unload as soon as you are through. A loaded gun has no place in - or near - a car or truck or building. Keep your fingers off the trigger while loading or unloading.

For shotgun shooting, don't load until you've started into the field or are well settled in a blind. Unload before you leave!

Many big game hunters will not chamber a cartridge until they have actually sighted game and decided to shoot. This is especially true when hunting from tree stands.

Target shooters should never load until it is their turn to shoot, and they should unload immediately if there is a delay in the shooting progression.

Think of yourself and your gun as part of a system whose safe operation depends on you. Your gun can't think. You can. Don't load until ready to shoot - and unload as soon as you're done.

4. Watch Your Muzzle So the Other Fellow Doesn't Have To

If everyone handled his gun so carefully that the muzzle never pointed at something the gunner didn't intend to shoot, we'd have no firearms accidents. It's as simple as that, and it's up to you.

Learn to keep your muzzle always pointed in a safe direction. That may be in the air on some occasions, at the ground on others, but never at anyone or at anything not intended as a target.

You can always tell an experienced shooter by how he or she handles a gun. Knowledgeable shooters always open the action on a gun before handing it to someone else and always check to make sure the gun is unloaded if it is handed to them.

Handle guns so others will want to hunt with you, not away from you. You and your gun are parts of a system whose safe operation depends on you. Your gun can't think, but you can.

5. Keep Guns and Ammunition Separately and in Locked Storage

There's really only one basic way to safely store guns and ammunition. They should both be kept locked, separate from one another, with the keys under the control of a responsible adult. Casual visitors and children should find it impossible to handle either without the direct approval, action and supervision of an experienced person totally informed in the principles of safe gun handling. This may take some extra effort on your part, but consider the potential consequences of the wrong hands putting guns and ammunition together.

6. Don't Shoot Unless Absolutely Sure of Your Target and What Is Beyond It

You can't call a bullet back. And you can't change its direction.

Once you've pulled the trigger on your rifle, shotgun or handgun, you have given up all control over where the bullet will go or what it will strike. All shooters - whether a big game hunter, upland gunner or plinker - owes it to themselves and to everyone within range of his firearm to be absolutely sure of his target. Make certain there are no hunters, buildings or other objects behind or near your target.

And make absolutely sure of the target itself. Particularly during the low-light periods of dawn and dusk, it is easy to mistake one shape for another. Scientists call it "Early Blur," and it is one reason you

should be totally sure of your target before pulling the trigger.

Firearms safety is up to you. Make no mistake about it.

7. Know the Range of Your Gun. Remember, Even a 22 Rimfire Can Travel Over One Mile

All shooters hope they will hit what they are aiming at when they pull the trigger. Safe shooters also consider where their shot might go if they miss.

Shooters should keep in mind how far a bullet will travel of it misses its intended target or ricochets in another direction. A 22 short can travel 1 1/4 miles, and a high-velocity cartridge such as a 30-06 can send its bullet more than 3 miles.

Shotgun pellets can travel 500 yards, and shotgun slugs have a range of one-half mile.

Before firing at game or other targets afield, shooters should be certain there are no roads, buildings or livestock in the course of fire, should the bullet go astray.

Guns and ammunition cannot think. You can.

8. Always Wear Eye and Ear Protection When Shooting

Most rules of shooting safety are intended to protect you and others around you, but there are two rules that are for your protection alone.

These rules involve the wearing of eye and ear protection. Eye protection can take the form of inexpensive plastic safety glasses, sunglasses, the shooters' own prescription lens or specialized shooting glasses. They guard against twigs, falling shot, clay target chips and the rare ruptured case or firearm malfunction.

Heavy repeated exposure to shooting noise is not only uncomfortable at the time, it can also cause permanent hearing loss that may not be detected until it is too late.

There are a wide variety of hearing protectors available, ranging from throwaway or reusable ear plugs to sound-deadening muffs that cover the entire ear. No target shooter, plinker or hunter sighting-in should ever be without them.

Obey the safety rules that are intended to protect you. Wear ear and eye protection.

9. Always Be Sure the Barrel is Clear of Obstructions. Only Carry Ammunition of the Proper Size for the Gun You Are Using

It might be mud, snow or a shotshell wad. It could even be a cleaning patch or the wrong size ammunition placed in your gun's chamber by mistake. All are obstructions that can block a gun barrel by careless gun handling - as in the case of mud or snow. Or, they may have been left there accidentally by someone else.

Proper safety procedures require that all gun barrels be checked for obstructions before firing.

Carry only the proper ammunition for the gun you are shooting. Mixing ammunition causes problems. A 20 gauge shotshell, for example, will pass through the chamber of a 12 gauge and lodge in the barrel.

Never allow different types of ammunition to get mixed up in the pockets of your hunting or shooting coat.

It is a simple and basic safety step to check your barrel for obstructions before shooting - for your own safety and to prevent damage to your gun.

10. Always Carry Handguns With the Hammer Down on an Empty Chamber

Handgun safety is largely a matter of common sense and the development of safe habits. For example:

- Carry loaded revolvers with empty chamber under the hammer.
- Carry loaded pistols with the magazine inserted but with an empty chamber.
- Always empty handguns before carrying into a house, car, boat or RV.
- Never point a handgun at anything you don't intend to shoot.
- Never handle a handgun without opening it yourself to check and see if it's loaded.
- Always open your handgun and keep it open after firing.
- Be sure of your backstop and what lies beyond it before you shoot.
- Refer to the instruction manual you received with your gun.

Information Provided by S A A M I
Sporting Arms And Ammunition Manufacturers' Institute, Inc.
Safety Series, 1075 Post Road, Riverside, CT 06878

Physical Effect of Gun Recoil (Kick)

The rearward motion of every gun, its recoil, increases when heavier shot or heavier bullets are fired, and when higher velocity loads are fired. This motion must be opposed by the shoulder, or the pistol hand, of the shooter. Whenever the recoil is perceptibly annoying to the shooter, accuracy on succeeding firings undoubtedly diminishes.

When the shooting condition demands heavy loads and high velocity, recoil kick can be reduced by using a heavier gun, and by spreading the force over a larger area of the anatomy, such as by using a wider stock, larger grip, plus shoulder pad or softer grip.

Excellent publications available to the reloader, plus his or her own growing sophistication, have generated a wholesome trend away from maximum loads and toward accuracy of loads no more powerful than needed for the intended purpose. Reducing recoil increases accuracy.

Contributing to increased accuracy as well as the pleasantness of shooting is in two main areas:

1. This *Reloaders' Guide* includes many reduced loads.
2. Our research indicates that the burning rate of powders has a modest effect on recoil. For example, whenever two or more powders are listed for the same load, the slower one usually is chosen by the expert shooter as giving milder felt recoil. An intriguing aspect of reloading at home is the freedom to assemble, for example, trap loads with Red Dot or Green Dot powder, then to shoot them alternately to decide which seems more comfortable.

⚠ DANGER! Handloading Precautions

1. **Understand what you are doing and why.** Read handbooks and manuals on reloading. Talk to experienced reloaders. Write or call suppliers of components if you have questions or are in doubt.
2. Stay ***alert*** when reloading. **Do not reload when distracted.**
3. Establish a loading procedure and follow it. **Do not vary your sequence of operations.**
4. **Examine empty cases** (shotshell or metallic) to be sure they are in good condition before reloading. Never force live cartridges into or out of the chamber of a gun.
5. **Do not use cases that are designed for primer-propelled practice cartridges;** such cases may not be designed for full power loads.
6. **Do not ream out or *enlarge* flash holes of metallic cartridge cases.** This may change the ignition rate and result in dangerous pressures.
7. **Do not punch out live primers.** Fire the empty primed shells in a gun.
8. **Do not mix primers.** Primers differ in brisance of ignition, which affects pressure and velocity. Use only the primer listed.
9. **The shotshell loading data in the *Reloaders' Guide are for LEAD SHOT only. Use steel shot only as specified in the steel shot data section.***
10. One-piece plastic wads for shotshells vary in compressibility and gas-sealing effectiveness. Use only the wad listed.
11. If you "throw," or measure powder charges by volume, check-weigh the charge frequently. Do not mix powders.
12. **Do not use powders near a flame, spark-producing machinery, or heating device.** Do not expose powders to temperatures above 100°F.
13. Keep out of reach of children.
14. **Do not smoke while reloading.**

Powder Information

Smokeless sporting propellants are of two basic types – single-base and double-base. Single-base propellants derive their energy from nitrocellulose and double-base from a combination of nitrocellulose and nitroglycerin. Alliant propellants range from the "near" single-base American Select (2% nitroglycerin) to the high nitroglycerin (40%) double-base Bullseye. In addition, our propellants contain stabilizers for long storage life and various other ballistic modifiers which reduce flash, improve combustion efficiency, and promote clean burning.

Some of our propellants also have a chemical coating on the surface to control the burning rate. This creates a progressive burn for achieving higher velocities at lower pressures. All of our propellants have a graphite glaze, which ensures smooth, consistent metering of charges through volumetric reloaders.

Alliant propellants are extruded and cut into circular flakes or cylinders by precision dies and cutting equipment. Granule size tolerances are very tight and uniform to prevent separation of different size granules and to ensure consistent ballistic performance, load after load.

By utilizing a precise combination of chemical formulation, granule size, and chemical coatings, we are able to tailor the burning characteristics of our propellants to achieve the best overall performance in a wide range of loads.

Because each of our propellants is specifically engineered to have different burn rates and performance characteristics, **NEVER BLEND OR MIX DIFFERENT POWDERS, AND USE ONLY THE POWDER AND QUANTITY RECOMMENDED IN THIS RELOADER'S GUIDE.**

All powders burn with great precision and rapidity inside the gun chamber, generating the hot, high-pressure gas that accelerates the bullet (or shot) and drives it toward the target. **It is critically important for safety that the powder used is matched to the bullet (or shot) weight and other factors; otherwise, the gun parts may be deformed or may even burst and cause serious personal injury (including death).** Shot-to-shot accuracy can also be degraded by deviations from recommended loads. Even after 80 years of producing and testing powders, ballisticians are unable to calculate and predict exact ballistic results; we must test-fire our powders with each set of components and record the results. Therefore, **the ballistic values and recommended combinations listed in this booklet must be followed without deviation.**

Working up charges. For shotgun loads, use the charge weight shown. However, for all rifle and pistol loads, first load and fire a few cartridges at the starting charge weight that is shown, watching for any sign of excessive pressure (difficult extraction, flattened or blown primers, unusual recoil).

Dram Equivalent

Prior to the commercialization of smokeless powder, shotgun shells were loaded with black powder. The weight measurement system used for black powder was "drams." Compared with black powder, **smokeless powder is more dense and much more energetic, so it cannot safely be measured and used like black powder.** Indeed, a different weight system was selected for smokeless powder: "grains," wherein 7,000 grains equal one pound.

Since many shooters still wanted to be able to compare their smokeless powder loads with the original black powder loads, the term "dram equivalent" evolved. Simply stated, the dram equivalent is an indicator of the velocity of a particular shot load. **But note that the charge and weight of smokeless powder must not be calculated from the dram equivalent.**

Smokeless Powders for Reloading

Alliant currently offers 15 powders for use in shotshell reloading. These are listed in the order of decreasing burning rates. Each powder listed is "slower" than those preceding it and "faster" than those following it. Among these Alliant smokeless powders, for example, Red Dot® burns more slowly than Bullseye®, but faster than Green Dot®.

Powder	Principal Use[1]	Can Also be Used In[1]
Bullseye®	Handgun Loads	.45 ACP Target
e3®	12-Gauge Target Loads	Light Target Loads
Red Dot®	Light and Standard Shotshell Loads, 12-Gauge	Handgun Loads
Promo®	Light and Standard Shotshell Loads, 12-Gauge	Handgun Loads
Clay Dot®	12-Gauge Target Loads	Light Target Loads
American Select®	12-Gauge Target Loads	Handgun Loads
Green Dot®	Standard and Medium Shotshell Loads, 12- and 16-Gauge	Handgun Loads
20/28®	28-Gauge Target Loads	20-Gauge Target Loads
Unique®	All-Around Shotshell Powder, 12-, 16-, 20-, and 28-Gauge	Handgun Loads
Power Pistol®	High performance pistol loads such as the 9mm, .40 S&W, and 10mm	Moderate pressure pistol cartridges like the .38 Special, .380 Auto, and .45 ACP
Herco®	Heavy Shotshell Loads, 10-, 12-, 16-, 20-, and 28-Gauge	Heavy Handgun Loads
Blue Dot®	Magnum Shotshell Loads, 10-, 12-, 16-, 20-, and 28-Gauge	Magnum Handgun Loads
Steel®	Steel Shotshell, 10- and 12-Gauge	Magnum, Shotshell and Turkey Loads
410®	410 Bore Target Loads	
2400®	Magnum Handgun Loads	Some Rifle and Shotshell Loads

[1] *Use only in the loads printed in this Guide.*

Packaging

Powder	1-lb Canister	4-lb Canister	5-lb Canister	8-lb Keg
Bullseye, Red Dot, American Select, Green Dot, Unique, Herco, 2400, e3, 410, 20/28	X	X		X
Power Pistol	X	X		
Blue Dot	X		X	
Reloder Series	X		X	
Steel	X	X		
Promo, Clay Dot				X

All 15 powders are always in stock at distributors' magazines throughout the U.S.A., and in most countries where reloading is legally permitted and popular. Any reloader unable to purchase any of the 15 powders at retail stores that handle powders should write to the address in the Reference Section. Alliant cannot ship directly, but we will endeavor to correct supply shortages in your area.

Section 2 - Hodgdon

Information Regarding The Use Of Hodgdon, IMR and Winchester Powder

Hodgdon Powders The Favorite Of Handloaders Since 1946
Hodgdon Powder Company, Inc.
Ballistics Laboratory, 6231 Robinson
Shawnee Mission, Kansas 66202

Forward

There are many good handbooks available giving the basics of reloading and the beginner should study one or more of them before embarking upon his new hobby. We are assuming that the user of our data manual knows the mechanics of reloading and simply needs a supplement to help him find a good load using the components available to him.

By revising our shotshell data often, we hope to keep fairly well up-to-date with the rapidly changing array of components offered by today's consumer-oriented manufacturers.

⚠ SAFETY WARNING—NEVER EXCEED THE LOADS LISTED IN THIS PUBLICATION

Ballistic data shown in this manual was obtained in Hodgdon/IMR/Winchester's laboratory under strictly controlled conditions.

Your reloads must contain the exact combinations listed in this manual. NEVER EXCEED charge recommendations in this manual.

Ballistic data varies considerably depending on many factors, including components used, how such components are assembled, the type of firearm used, and the reloading techniques and safety precautions utilized by the individual.

NEVER mix any two powders regardless of type, brand or source. NEVER substitute any smokeless powder for black powder, for Pyrodex® or for Triple Seven® muzzleloading powder.

Hodgdon/IMR/Winchester specifically disclaims any warranties with respect to any and all products sold or distributed by it, the safety or suitability thereof, or the results obtained, whether express or implied, including without limitation any implied warranty of merchantabililty or fitness for a particular purpose and/or any other warranty. Buyers and users assume all risk, responsibility and liability whatsoever for any and all injuries (including death), losses, or damages to persons or property (including consequential damages), arising from the use of any product or data, whether or not occasioned by seller's negligence or based on strict product liability or principles of indemnity or contribution. Hodgdon/IMR/Winchester neither assumes nor authorizes any person to assume for it any liability in connection with the use of any product or data.

The individual assumes the risk of safe loading practices. Failure to do so or violation of any of the above warnings could result in severe personal injury (including death) or gun damage to the user or bystanders.

USE THIS DATA WITH Hodgdon/IMR/Winchester BRAND POWDERS ONLY

Reduce data 10% to start and work up. DO NOT EXCEED THE LOADS SHOWN IN THIS GUIDE.

⚠ SAFETY WARNING—THE DATA IN THIS MANUAL WAS DEVELOPED IN THE HODGDON/IMR/WINCHESTER LABORATORY UNDER CONTROLLED CONDITIONS. NO DATA SHOWN IN THE ENSUING LEAD DATA SECTION SHOULD BE USED WITH STEEL OR BISMUTH SHOT. NEVER SUBSTITUTE COMPONENTS WHEN LOADING SHOTSHELLS USING THIS DATA. SUBSTITUTION OF DIFFERENT COMPONENTS COULD CAUSE EXCESSIVE OR DANGEROUS PRESSURES, WHICH COULD DAMAGE OR DESTROY YOUR FIREARM OR CAUSE SERIOUS PERSONAL INJURY OR EVEN DEATH TO THE USER AND/OR BYSTANDERS.

The format provides a convenient presentation of all components used for a given set of data. Loads are listed alphabetically by case type and then alphabetically by primer type with each set of data. In addition, each set of components is shown in even velocity increments corresponding to the old Dram equivalent velocities. This allows the shooter to choose loads similar to factory loadings.

After choosing an appropriate load, be sure to weigh actual charges thrown by the bushing or charge bar. No bushing or charge bar throws the exact charge as listed in the tables. Such changes occur because of small tolerances in bushing sizes, tolerances in bulk density of powder, and the way each loader is mounted and operated. It is important to very these weights for safety and to insure getting the type of load you want.

Since Hodgdon/IMR/Winchester Powder Company has no control over variations in components, reloading tools or reloader's procedures, the individual is solely responsible for any changes in ballistics that may occur using this data.

Damascus barreled shotguns should NOT be used with any powder due to their weak construction. Barrel rupture may result in injury or death to the shooter and/or bystander.

CHAPTER 9

Reloading Data Recipes—

Section 1-Hull Identification

Hull Identification— Color photographs of the outside and inside of sectioned (cut in half) shotshells are included in the Hull Identification (I.D.) section. Many variations of the same hull are shown, such as different colors, high and low metal heads, etc. For positive identification, handloaders should section a sample hull with a hacksaw or bandsaw. The gauge, length of the hull, base wad material, base wad construction and basewad color of the hull in question should be compared carefully with the color photographs.

For positive identification, handloaders should section a sample hull

Find the hull I.D. (full color picture) that matches your sectioned hull, and then turn to the page where Reference Notes for this hull are located for additional information specific to that hull.

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

Find your ideal Shotshell load

First section a sample hull with a hacksaw or bandsaw.

10 GA 12 GA 16 GA 20 GA 28 GA .410 Bore

Identify your hull and find the specifications

Section 1
Pages 84 -103
Hull Identification

Section your hull and match it with the photo.

1

Section 2
Pages 104 -122
Reference Notes

This enables the handloader to make positive identification of the hull in question.

2

Section 3
Pages 123 - 333
Reloading Data

Choose the recipe best suited for your requirements.

3

10

10 Gauge 3 ½"

Federal Plastic Target Shell (With Fiber Basewad)

Hull #1

10 Gauge 3 ½"

Reloading Data Page 124
Reference Notes Page 103

10

10 Gauge 3 ½"

Remington SP Plastic Shell (With Yellow Plastic (Tall) Basewad)

Hull #2

10 Gauge 3 ½"

Reloading Data Page 124
Reference Notes Page 103

10

10 Gauge 3 ½"

Remington SP Plastic Shell (With Plastic (Short) Basewad)

Hull #3

10 Gauge 3 ½"

Reloading Data Page N/A
Reference Notes Page 103

Hull #4

10 Gauge 3 ½"

Reloading Data Page 125
Reference Notes Page 104

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

10

10 Gauge 3 ½"

Hull #5

12 Gauge 3 ½"

Reloading Data Page 126
Reference Notes Page 104

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

12

12 Gauge 3 ½"

Hull #6

12 Gauge 3 ½"

Reloading Data Page 127
Reference Notes Page 105

Remington SP Plastic Shell (With Yellow Plastic Basewad)

12

12 Gauge 3 ½"

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

12

12 Gauge 3 ½"

Hull #7

12 Gauge 3 ½"

Reloading Data Page 127
Reference Notes Page 105

Federal Hi-Power Plastic Shell (With 7/16" Paper Basewad)

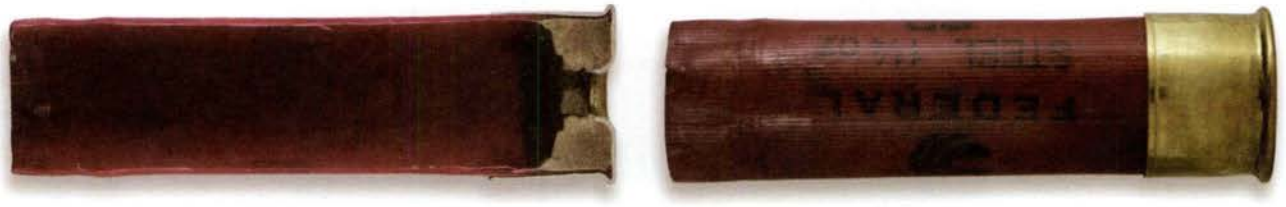
12

12 Gauge 3"

Hull #8

12 Gauge 3"

Reloading Data Page 128
Reference Notes Page 105



Federal One-Piece Plastic Shell (With .090 Integral Basewad)

12

12 Gauge 3"

Hull #9

12 Gauge 3"

Reloading Data Page 130
Reference Notes Page 106

Hull #10

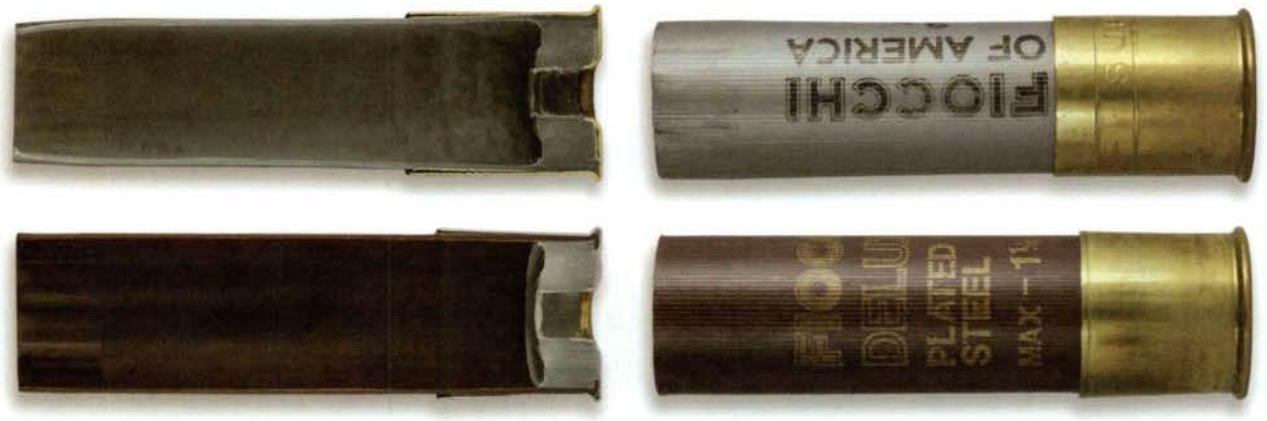
12 Gauge 3″

Reloading Data Page 130
Reference Notes Page 106

Fiocchi Plastic Shell (With Plastic Basewad)

12

12 Gauge 3″



Hull #11

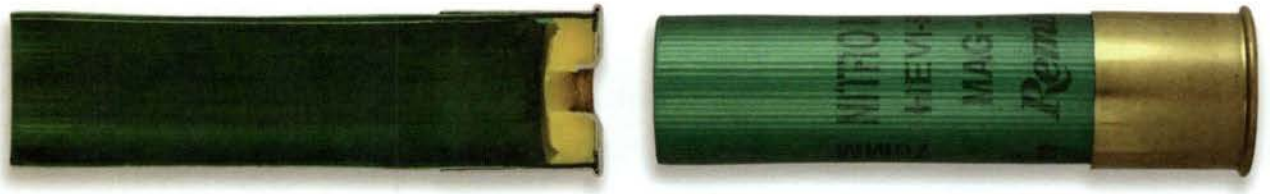
12 Gauge 3″

Reloading Data Page N/A
Reference Notes Page 106

Remington SPELV Plastic Shell (With Yellow Plastic Basewad)

12

12 Gauge 3″



Hull #12

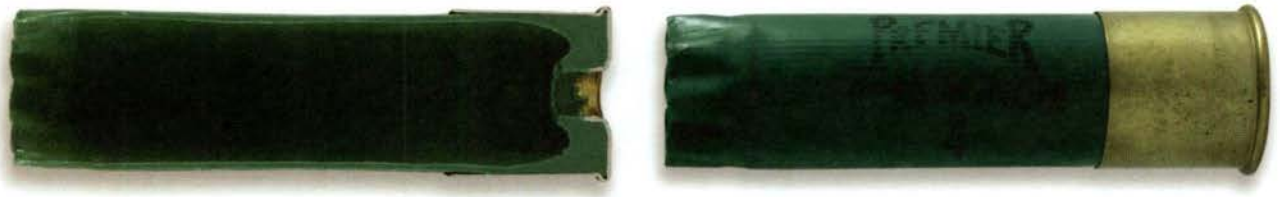
12 Gauge 3″

Reloading Data Page N/A
Reference Notes Page 107

Remington One-Piece Unibody Shell

12

12 Gauge 3″



Remington SPLV Plastic Shell (With Plastic Basewad)

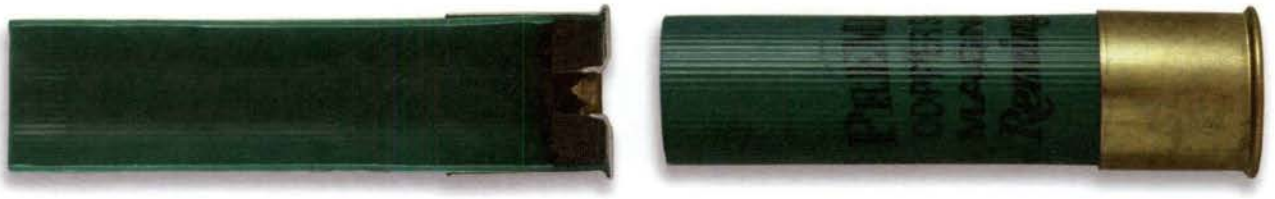
12

12 Gauge 3″

Hull #13

12 Gauge 3″

Reloading Data Page 131
Reference Notes Page 107



Winchester Compression Formed Plastic AA-Type Shell

12

12 Gauge 3″

Hull #14

12 Gauge 3″

Reloading Data Page 132
Reference Notes Page 107

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

12

12 Gauge 3″

Hull #15

12 Gauge 3″

Reloading Data Page 132
Reference Notes Page 107

Hull #16

12 Gauge 2 ¾"

Reloading Data Page 133

Reference Notes Page 108

Cheddite Plastic Shell (With Plastic Basewad)

12

12 Gauge 2 ¾"

Hull #17

12 Gauge 2 ¾"

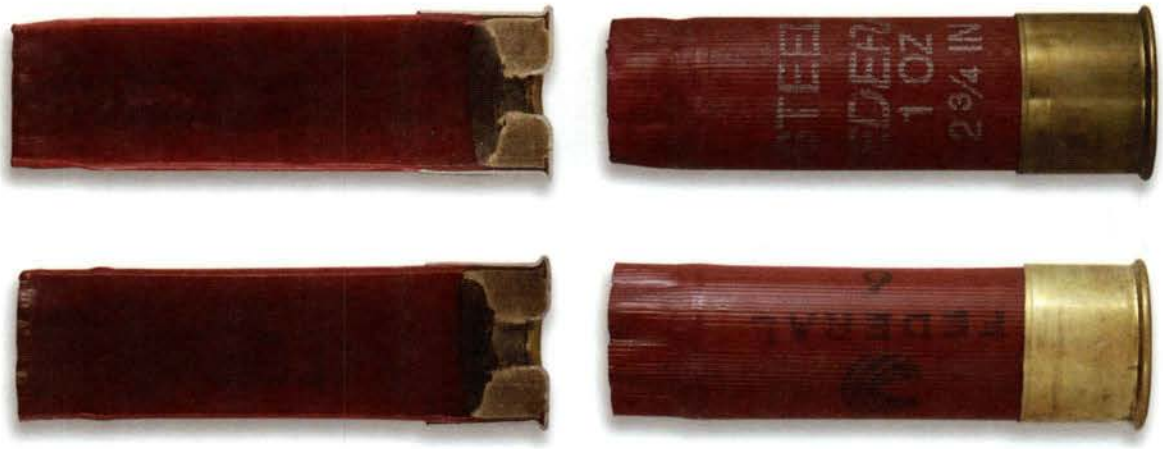
Reloading Data Page N/A

Reference Notes Page 108

Federal Plastic Shell (With 7/16" Paper Basewad)

12

12 Gauge 2 ¾"



Federal One-Piece Plastic Shell Target & Gold Medal Type

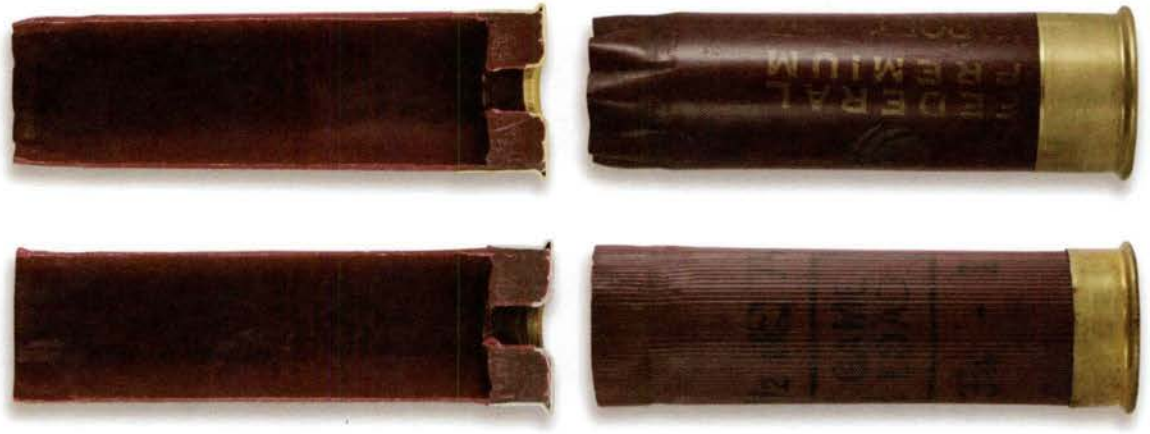
Hull #18

12 Gauge 2 ¾″

Reloading Data Page 135
Reference Notes Page 109

12

12 Gauge 2 ¾″



Federal Hi-Power Plastic Shell (With 9/16″ Paper Basewad)

Hull #19

12 Gauge 2 ¾″

Reloading Data Page 162
Reference Notes Page 109

12

12 Gauge 2 ¾″

Hull #20

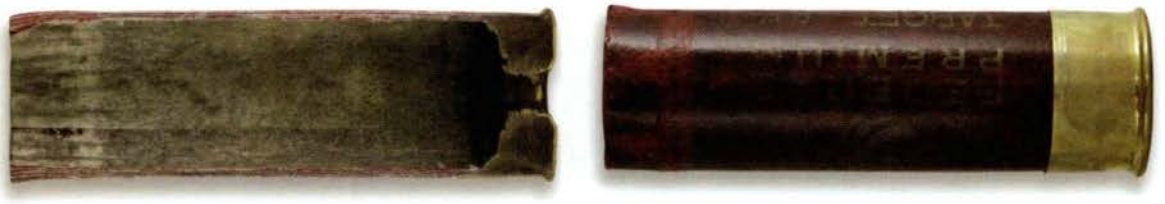
12 Gauge 2 3/4"

Reloading Data Page 165
Reference Notes Page 110

Federal Paper Target Shell (With Paper Basewad)

12

12 Gauge 2 3/4"



Hull #21

12 Gauge 2 3/4"

Reloading Data Page 172
Reference Notes Page 110

Fiocchi Plastic Target Shell (With 10.5mm Plastic Basewad)

12

12 Gauge 2 3/4"

12

12 Gauge 2 3/4"

Fiocchi Plastic Shell (With 7mm Basewad)

Hull #22

12 Gauge 2 3/4"

Reloading Data Page 176
Reference Notes Page 110

12

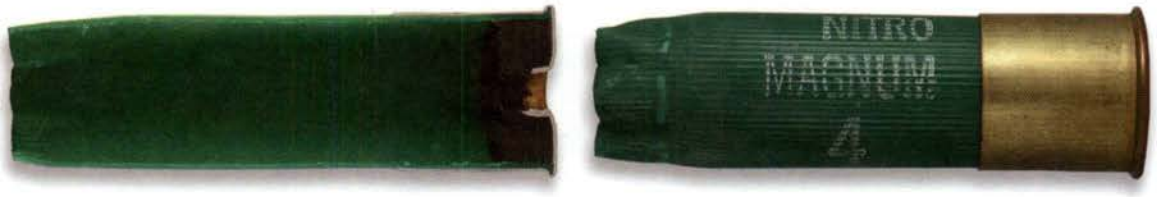
12 Gauge 2 3/4"

Remington Nitro Mag Plastic Shell (With Plastic Basewad)

Hull #23

12 Gauge 2 3/4"

Reloading Data Page N/A
Reference Notes Page 111



Hull #24

12 Gauge 2 ¾"

Reloading Data Page 179

Reference Notes Page 111

Remington One-Piece Premier RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"

Hull #25

12 Gauge 2 ¾"

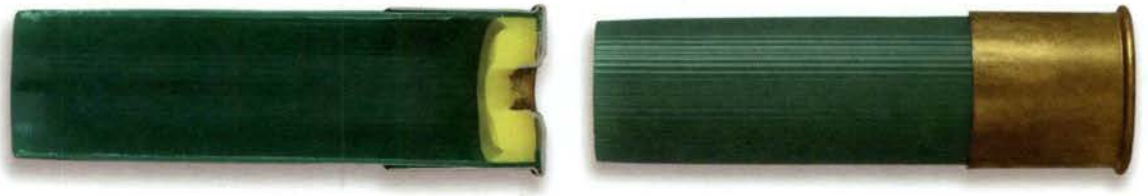
Reloading Data Page N/A

Reference Notes Page 112

Remington SPELV Plastic Shell (With Yellow Plastic Basewad)

12

12 Gauge 2 ¾"



Remington One-Piece Unibody SP Plastic Shell

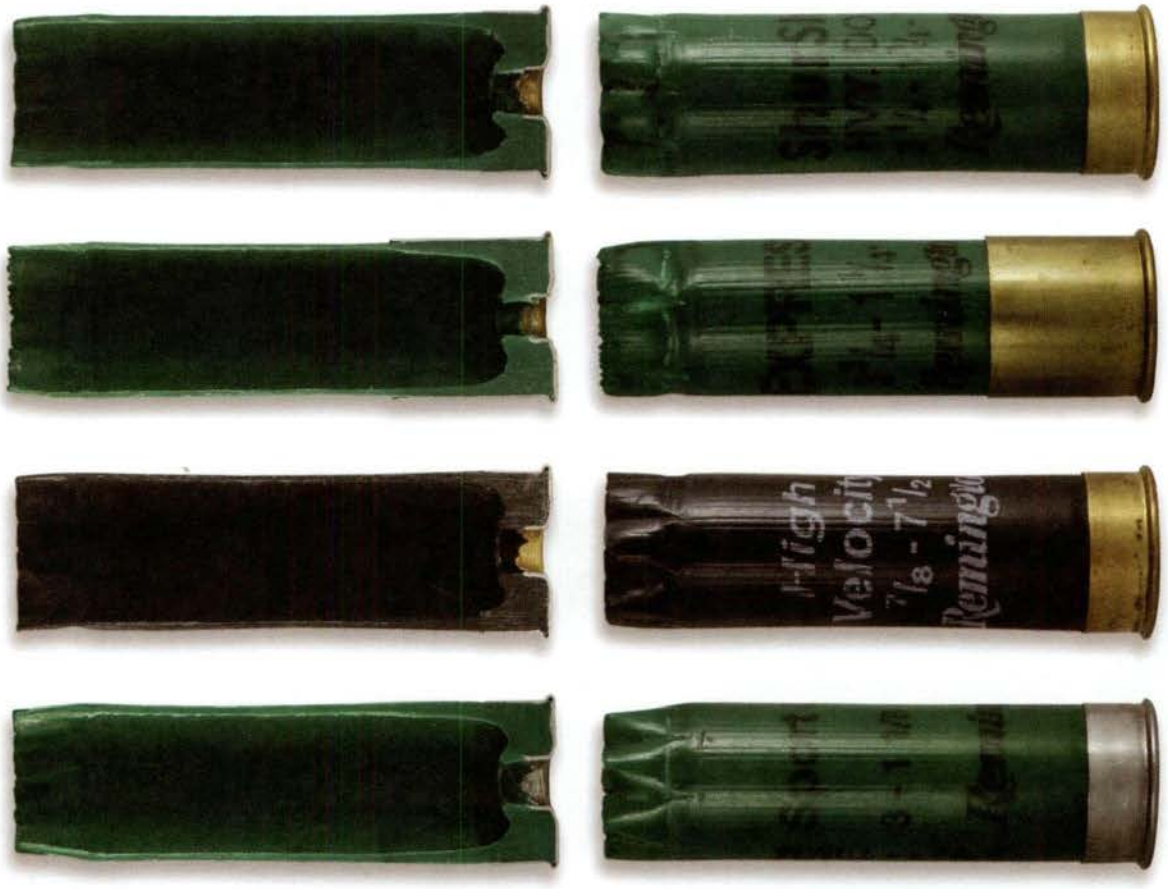
12

12 Gauge 2 3/4"

Hull #26

12 Gauge 2 3/4"

Reloading Data Page 217
Reference Notes Page 112



Winchester Polyformed Plastic Shell (With White Plastic Basewad)

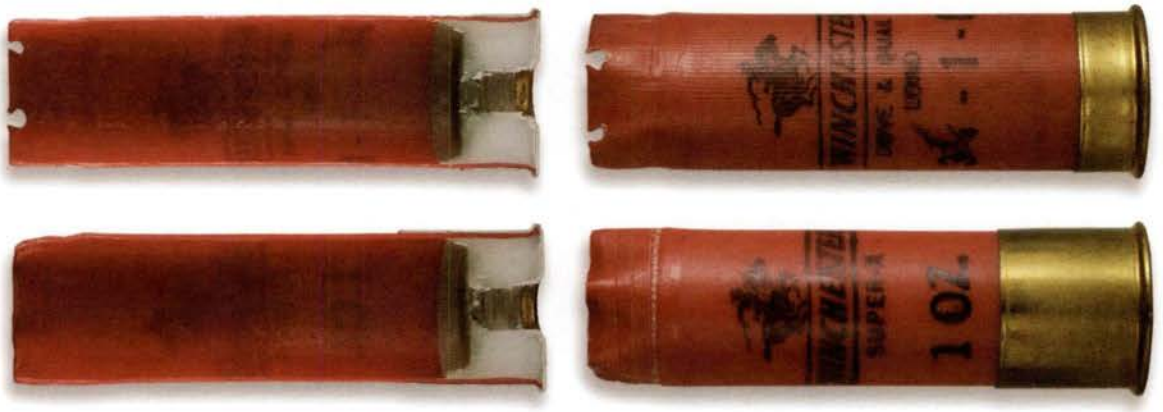
12

12 Gauge 2 3/4"

Hull #27

12 Gauge 2 3/4"

Reloading Data Page 219
Reference Notes Page 112



Hull #28

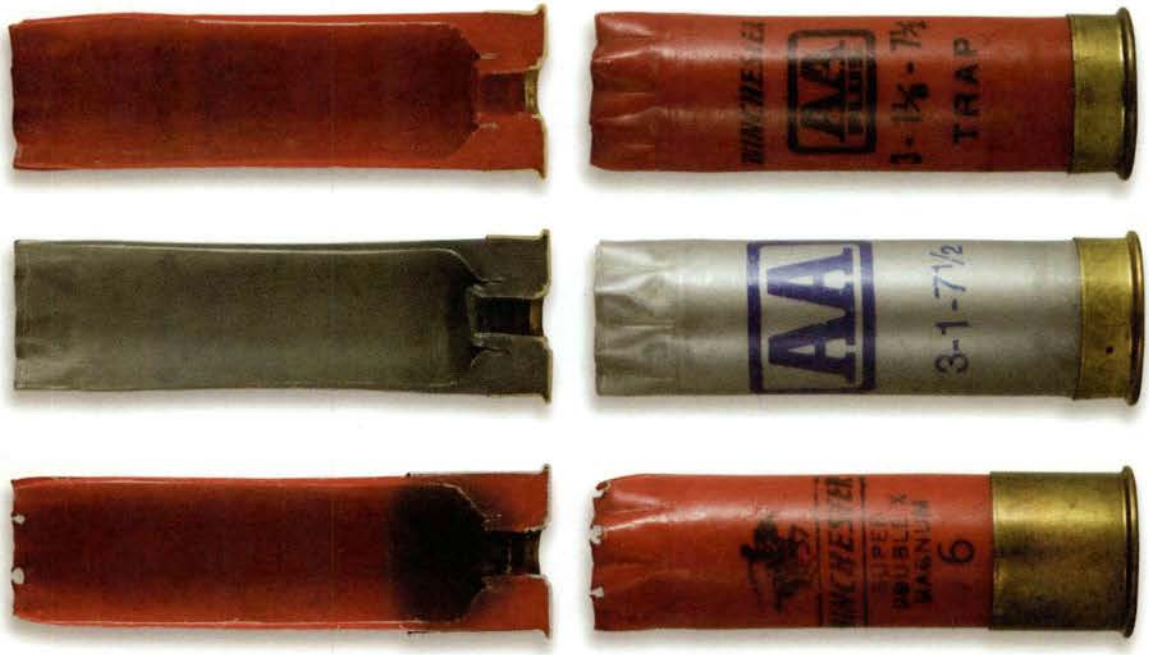
12 Gauge 2 ¾"

Reloading Data Page 221
Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"



Hull #29

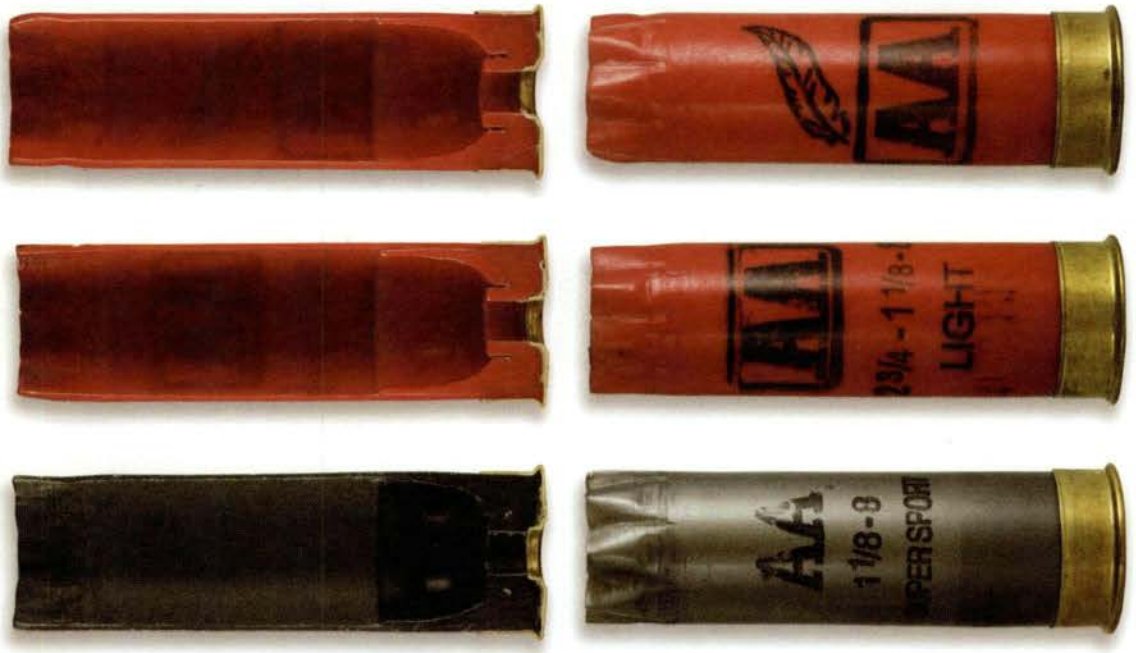
12 Gauge 2 ¾"

Reloading Data Page 221
Reference Notes Page 113

Winchester Plastic (New) HS AA Shell (With Separate Plastic Basewad)

12

12 Gauge 2 ¾"



16

16 Gauge 2 3/4"

Federal Hi-Power Plastic Shell (With Rolled Paper Basewad)

Hull #30

16 Gauge 2 3/4"

Reloading Data Page 258
Reference Notes Page 114

16

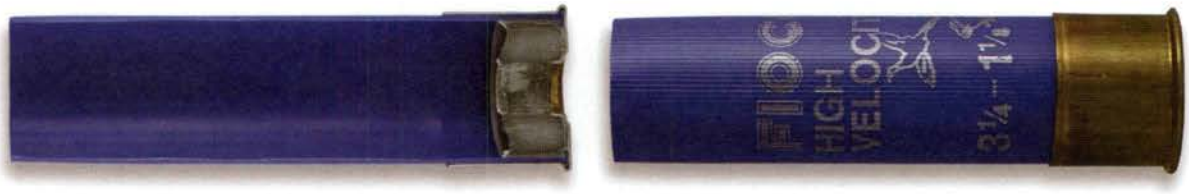
16 Gauge 2 3/4"

Fiocchi Plastic Shell (With Plastic Basewad)

Hull #31

16 Gauge 2 3/4"

Reloading Data Page 259
Reference Notes Page 114



16

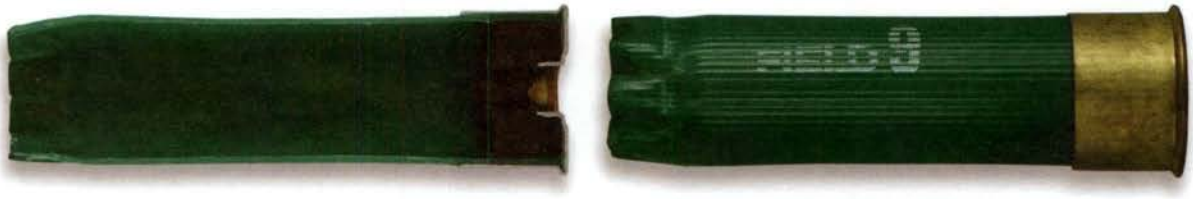
16 Gauge 2 3/4"

Remington SP Plastic Shell (With Plastic Basewad)

Hull #32

16 Gauge 2 3/4"

Reloading Data Page 260
Reference Notes Page 114



16

16 Gauge 2 3/4"

Winchester Compression Formed Plastic AA-Type Shell

Hull #33

16 Gauge 2 3/4"

Reloading Data Page 261
Reference Notes Page 114

Hull #34

20 Gauge 3″

Reloading Data Page 261
Reference Notes Page 115

Federal Hi-Power Plastic Shell (With Paper Basewad)

20

20 Gauge 3″

Hull #35

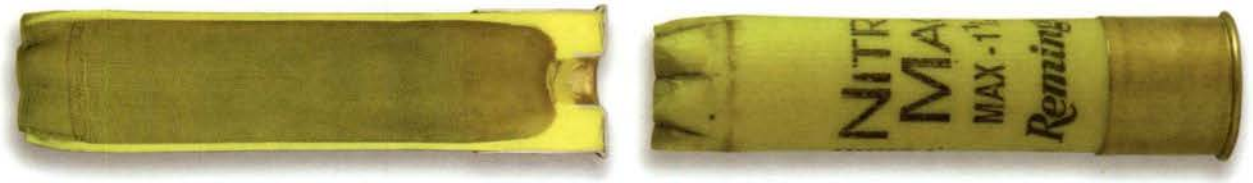
20 Gauge 3″

Reloading Data Page 263
Reference Notes Page 115

Remington Premier Plastic Shell

20

20 Gauge 3″



Hull #36

20 Gauge 3″

Reloading Data Page 264
Reference Notes Page 115

Winchester Compression Formed Plastic AA-Type Shell

20

20 Gauge 3″

Hull #37

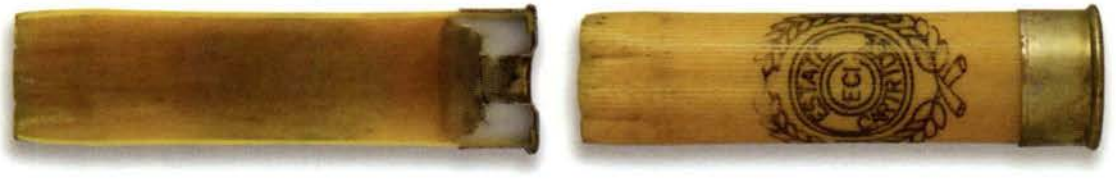
20 Gauge 2 3/4″

Reloading Data Page 266
Reference Notes Page 115

Cheddite Plastic Shell (With Plastic Basewad)

20

20 Gauge 2 3/4″



Federal Plastic Target Shell (With Paper Basewad)

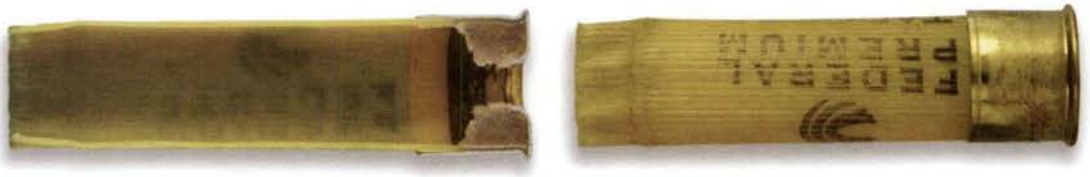
20

20 Gauge 2 3/4"

Hull #38

20 Gauge 2 3/4"

Reloading Data Page 267
Reference Notes Page 116



Fiocchi Plastic Shell (With Plastic Basewad)

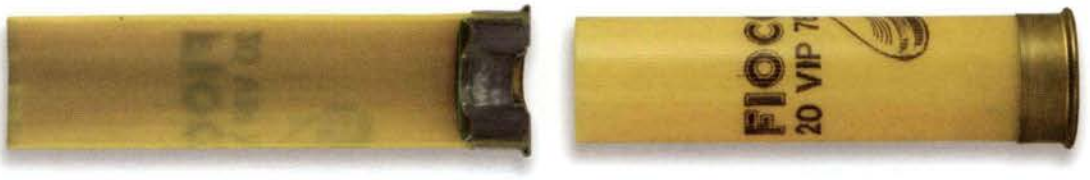
20

20 Gauge 2 3/4"

Hull #39

20 Gauge 2 3/4"

Reloading Data Page 273
Reference Notes Page 116



Remington Premier, STS, RXP Plastic Target Shell

20

20 Gauge 2 3/4"

Hull #40

20 Gauge 2 3/4"

Reloading Data Page 275
Reference Notes Page 116

Hull #41

20 Gauge 2 ¾"

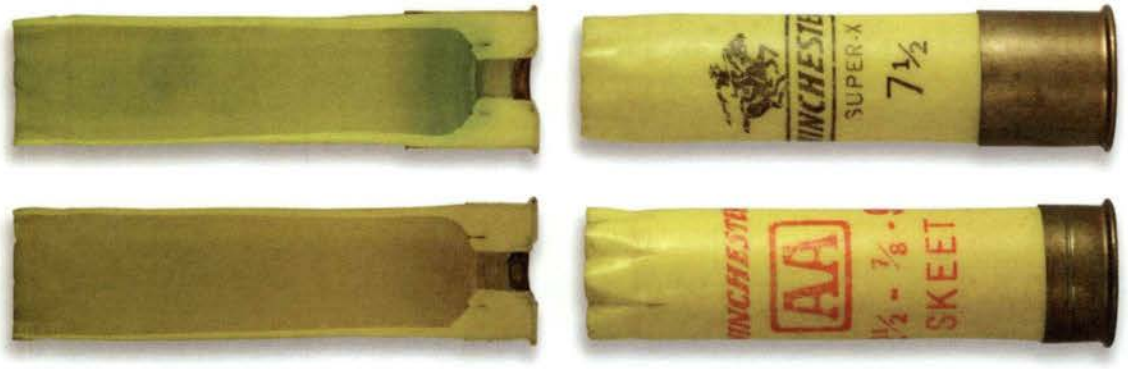
Reloading Data Page 281

Reference Notes Page 117

Winchester Compression Formed Plastic AA & AA-Type Shell

20

20 Gauge 2 ¾"



Hull #42

20 Gauge 2 ¾"

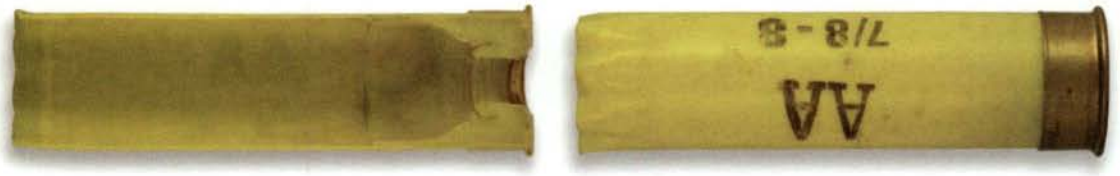
Reloading Data Page 281

Reference Notes Page 117

Winchester Plastic (New) HS AA Shell (With Separate Plastic Basewad)

20

20 Gauge 2 ¾"



Hull #43

28 Gauge 2 ¾"

Reloading Data Page 283

Reference Notes Page 118

Federal Plastic Target Shell (With Paper Basewad)

28

28 Gauge 2 ¾"

Remington One-Piece Plastic Premier STS Shell

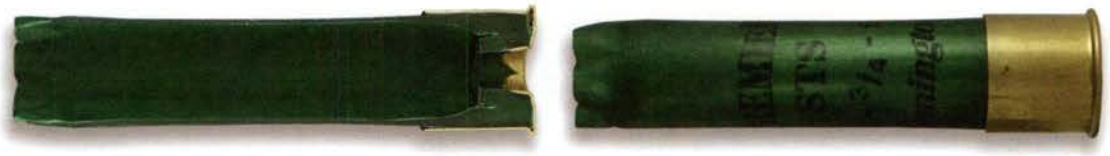
28

28 Gauge 2 3/4"

Hull #44

28 Gauge 2 3/4"

Reloading Data Page 286
Reference Notes Page 118



Remington One-Piece RTL Plastic Target Shell

28

28 Gauge 2 3/4"

Hull #45

28 Gauge 2 3/4"

Reloading Data Page 288
Reference Notes Page 118

Winchester Compression Formed Plastic AA & AA-Type Shell

28

28 Gauge 2 3/4"

Hull #46

28 Gauge 2 3/4"

Reloading Data Page 289
Reference Notes Page 118

Winchester Plastic (New) HS AA Shell (With Separate Plastic Basewad)

28

28 Gauge 2 3/4"

Hull #47

28 Gauge 2 3/4"

Reloading Data Page 291
Reference Notes Page 119

Hull #48

410 Gauge 3″

Reloading Data Page 293

Reference Notes Page 119

Federal Plastic Shell (With Paper Basewad)

410

410 Gauge 3″

Hull #49

410 Gauge 3″

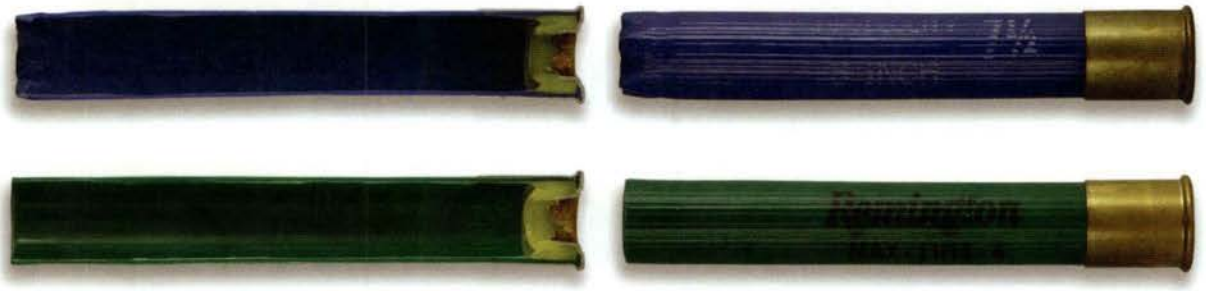
Reloading Data Page 293

Reference Notes Page 120

Remington Plastic Shell (With Plastic Basewad)

410

410 Gauge 3″



Hull #50

410 Gauge 3″

Reloading Data Page 294

Reference Notes Page 120

Winchester Compression Formed Plastic AA-Type Shell

410

410 Gauge 3″

Hull #51

410 Gauge 3″

Reloading Data Page 294

Reference Notes Page 120

Winchester Plastic (New) HS AA Shell (With Separate Plastic Basewad)

410

410 Gauge 3″

Federal Plastic Shell (With Paper Basewad)

410

410 Gauge 2 ½"

Hull #52

410 Gauge 2 ½"

Reloading Data Page 294
Reference Notes Page 121

Remington Plastic Premier STS Shell (With Plastic Basewad)

410

410 Gauge 2 ½"

Hull #53

410 Gauge 2 ½"

Reloading Data Page 295
Reference Notes Page 121

Remington SP Plastic Shell (With Plastic Basewad)

410

410 Gauge 2 ½"

Hull #54

410 Gauge 2 ½"

Reloading Data Page 295
Reference Notes Page 121

Winchester Compression Formed Plastic AA & AA-Type Shell

410

410 Gauge 2 ½"

Hull #55

410 Gauge 2 ½"

Reloading Data Page 297
Reference Notes Page 121

Winchester Plastic (New) HS AA Shell (With Separate Plastic Basewad)

410

410 Gauge 2 ½"

Hull #56

410 Gauge 2 ½"

Reloading Data Page 297
Reference Notes Page 122

Section 2 - Reference Notes

Reference Notes—The Reference Notes section includes specifications for hulls shown in the Hull I.D. photographs. This enables the handloader to make positive identification of the hull in question. Special information regarding characteristics and reloadability of certain hulls is included. The handloader can proceed to the reloading data (recipes) once positive identification has been made. The page number is given for the reloading data in both the Reference Notes and the Hull I.D. sections.

WARNING: Hulls that cannot be positively identified should not be reloaded. Contact the manufacturer and request additional identifying information.

Reference Notes # 1

10–Gauge 3–1/2–Inch Federal Plastic Shell With Paper Basewad Hull I.D. page 84 Reloading data page 124

Reifenhauser process hull construction
Rolled paper basewad
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed brown plastic tube

Federal's plastic 10–gauge shell consists of three parts: a brown plastic tube, a rolled paper basewad and a brass or brass–plated steel head. The factory crimp is a folded 6–point type closure. This is probably the best of the 10–gauge 3–1/2-inch hulls for the handloader. It has a large internal volume and produces a very good velocity–to–pressure ratio when reloaded with either 2 or 2–1/8 ounces of shot. The 2–ounce load is probably the best all around load and is easiest to reload. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

Reference Notes # 2

10–Gauge 3–1/2–Inch Remington SP Plastic Shell With Yellow Plastic (Tall) Basewad Hull I.D. page 84 Reloading data page 124

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed green or olive drab plastic tube

WARNING: Do not mistake this hull from I.D. # 3, which has a much shorter molded plastic basewad and different internal capacity.

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

This three–piece Remington shell is similar to I.D. # 3 except for the taller basewad height. Colors of basewads may be yellow, black or natural (milky white translucent). The factory load has a 6–point folded crimp. Alliant and other powder manufacturers have developed separate loading data specific to this hull.

In the past, the mouth of this hull had a tendency to shrink when fired. In recent years shrinkage doesn't seem to be the problem it was several years ago. If shrinkage is detected, the handloader may find it necessary to make a tapered mouth expander from a wooden broom handle or dowel rod to open the mouth up to facilitate seating the plastic wad.

If the hull crushes and bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate the problem.

Reference Notes # 3

10–Gauge 3–1/2–Inch Remington SP Plastic Shell With Plastic (Short) Basewad Hull I.D. page 84

Reloading data page—Data available from specialty companies (see continuation on next page)

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed green plastic tube

WARNING: Do not mistake this hull from I.D. # 2, which has a much taller molded plastic basewad and different internal capacity.

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

This three–piece Remington shell is similar to I.D. # 2 except for the shorter basewad height. Colors of basewads may be yellow, black or natural (milky white translucent). The factory load has a 6–point folded crimp. In years past, the mouth of this hull had a tendency to shrink when fired. In recent years shrinkage doesn't seem to be the problem it was several years ago. If shrinkage is detected, the handloader may find it necessary to make a tapered mouth expander from a wooden broom handle or dowel rod to open the mouth up which facilitates seating the plastic wad.

If the hull crushes and bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloader, to eliminate the problem.

With a very large internal capacity this hull is a favorite for waterfowl hunters. For a source of once–fired hulls and specialty loads for this specific hull please contact:

Ballistic Products, Inc.
Box 293
Corcoran, MN 55340
888/273–5623
www.ballisticproducts.com

Precision Reloading, LLC
124 S. Main ST.
Mitchell, SD 57301
605/996–9984
www.precisionreloading.com

Reloading Specialties, Inc.
Box 1130
Pine Island, MN 55963
507/356–8500

Reference Notes # 4

10–Gauge 3–1/2–Inch Winchester Polyformed Plastic Shell With White Plastic Basewad Hull I.D. page 85 Reloading data page 125

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed red plastic tube

The Winchester polyformed shell consists of three parts: a plastic tube, molded plastic basewad and a brass or brass–plated steel head. The factory shell has a 6–point folded crimp with a heat seal in the center. When reloaded the handloader will find a small hole in the center of the shell where the original heat seal has been blown away. Generally this hole is not large enough to leak shot, but a drop or two of candle wax will seal it if desired.

The Ribbed plastic hull is red in color and may be found with a high brass or brass–plated metal head. It has a separate white, translucent plastic basewad. This basewad has a very small flash hole and, when depriming, there may be a tendency for the deprime punch to stick in the flash hole. Be careful that the plastic basewad does not come loose as the deprime punch is removed. If it does and is pulled up in the tube, the hull should be discarded.

Winchester's polyformed hull can be reloaded one or two times, but care must be taken in adjusting the crimp die to prevent the hull from crushing and forming a bulge in the plastic just above the metal head. If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 5

12–Gauge 3–1/2–Inch Federal One–Piece Plastic Shell With .090" Integral Basewad Hull I.D. page 85 Reloading data page 126

Special one–piece plastic hull construction
Integral plastic basewad
6 and 8–point folded crimp
High brass or brass–plated steel head
209–size primer
Ribbed burgundy plastic tube

Federal's one–piece plastic shell, with a .090" integral basewad offers the greatest internal capacity of 3–1/2" one–piece plastic hulls. It is different from other one–piece plastic hulls in that the tube is not tapered on the inside. This is a plus for handloader's as heavier loads can be reloaded without experiencing maximum pressures.

Many handloader's feel that this Federal hull may be the best 3-1/2" 12 gauge hull on the market today where heavier loads of shot are reloaded.

Reference Notes # 6

12–Gauge 3–1/2–Inch Remington SP Plastic Shell With Yellow Plastic Basewad Hull I.D. page 85 Reloading data page 127

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209–size primer
Ribbed green or metallic green plastic tube

⚠ CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

This is the Remington SP hull in 3–1/2–inch length. All information written about the 2–3/4–inch SP hull in Reference Notes # 23 applies to this hull.

Reference Notes # 7

12–Gauge 3–1/2–Inch Winchester Polyformed Plastic Shell With White Plastic Basewad Hull I.D. page 86 Reloading data page 127

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass or brass–plated steel head
209–size primer
Ribbed red plastic tube

The Winchester polyformed shell consists of three parts: a plastic tube, molded plastic basewad and a brass or brass–plated steel. The factory shell has a 6–point folded crimp with a heat seal in the center. When reloaded the handloader will find a small hole in the center of the shell where the original heat seal has been blown away. Generally this hole is not large enough to leak shot, but a drop or two of candle wax will seal it if desired.

The Ribbed plastic hull is red in color and may be found with a high brass or brass–plated metal head. It has a separate white, translucent plastic basewad. This basewad has a very small flash hole and, when depriming, there may be a tendency for the deprime punch to stick in the flash hole. Be careful that the plastic basewad does not come loose as the deprime punch is removed. If it does and is pulled up in the tube, the hull should be discarded.

Winchester's polyformed hull can be reloaded one or two times, but care must be taken in adjusting the crimp die to prevent the hull from crushing and forming a bulge in the plastic just above the metal head. If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 8

12–Gauge 3–Inch Federal Hi–Power Plastic Shell With 7/16" Paper Basewad Hull I.D. page 86 Reloading data page 128

Reifenhauser process hull construction
Rolled paper basewad
6–point folded crimp
High brass or brass–plated steel head
209–size primer
Ribbed burgundy plastic tube

This is the 3–inch version of the 2–3/4–inch Hi–Power. All information written about the 2–3/4–inch Hi–Power applies to the 3–inch hull. For more information read Reference Notes # 17. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 9

12–Gauge 3–Inch
Federal One–Piece Plastic Shell
With .090" Integral Basewad
Hull I.D. page 86
Reloading data page 130

Special one–piece plastic hull construction
Integral plastic basewad
6 and 8–point folded crimp
High brass or brass–plated steel head
209–size primer
Ribbed burgundy plastic tube

Federal's one–piece plastic shell, with a .090" integral basewad offers the greatest internal capacity of 3" one–piece plastic hulls. It is different from other one–piece plastic hulls in that the tube is not tapered on the inside. This is a plus for handloader's as heavier loads can be reloaded without experiencing maximum pressures.

Many handloader's feel that this Federal hull may be the best 3" choice hull on the market today where heavier loads of shot are reloaded.

Reference Notes # 10

12–Gauge 3–Inch
Fiocchi Plastic Shell With Plastic Basewad
Hull I.D. page 87
Reloading data page 130

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass or brass–plated steel head
Fiocchi 616 size primer
Ribbed and smooth plastic tube in many colors including clear

Fiocchi is one of the largest ammunition manufacturers in Europe. Their shotshell products are of excellent quality and reloadability. In addition to loaded shotshell ammunition Fiocchi also manufacturers new component hulls for handloaders. Since these hulls have never been loaded care must be taken in crimping. Check with the manufacturer of your reloading press for specific instructions. Generally a six–point closure will work best with a new component hull. Hulls will be found in virtually all gauges including .410 bore and colors will vary. Fiocchi has furnished private branded component hulls for other manufacturers.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloader, to eliminate this problem.

CAUTION: Fiocchi factory shotshell ammunition and component hulls are loaded with Fiocchi 616 primers. This primer is somewhat larger near the rim as compared to domestic 209 size primers. Handloaders will be best served to reload Fiocchi hulls with Fiocchi 616 primers, as domestic shotshell primers tend to fit loosely if used as a component when reloading Fiocchi hulls.

CAUTION: The molded plastic basewad in Fiocchi hulls will vary in height. Generally, Fiocchi "target" load hulls will have a 10mm tall basewad and "hunting" load hulls will have a 7mm tall basewad. Please note the differences in the full color I.D. section.

Reference Notes # 11

12–Gauge 3–Inch
Remington SPELV Plastic Shell
With Yellow Plastic Basewad
Hull I.D. page 87
Reloading data page N/A

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed green and metallic green plastic tube

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

This is the Remington SPELV (Special Purpose Extra Large Volume) hull in 3-inch length. Alliant and other powder manufacturers have developed separate loading data specific to this hull. All information written about the 2–3/4–inch SP hull in Reference Notes # 23 applies to this 3–inch hull.

Reference Notes # 12

12–Gauge 3–Inch
Remington One-Piece Unibody Shell
Hull I.D. page 87
Reloading data page N/A

Unibody process plastic hull construction
Integral plastic basewad
8–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed green plastic tube

Remington's Unibody hulls have a one–piece plastic tube with a crimped–on metal head. This is the 3–inch version of the Unibody design. It is a very good hull for the reloader and is a great improvement over the old style molded fiber basewad hull.

Reference Notes # 13

12–Gauge 3–Inch
Remington SPLV Plastic Shell
With Plastic Basewad
Hull I.D. page 88
Reloading data page 131

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed green and blue plastic tube

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

This is the Remington SPLV (Special Purpose Large Volume) hull in 3-inch length. Alliant and other powder manufacturers have developed separate loading data specific to this hull. All information written about the 2–3/4–inch SP hull in Reference Notes # 23 applies to this 3–inch hull.

Reference Notes # 14

12–Gauge 3–Inch
Winchester Compression Formed Plastic
AA–Type Shell
Hull I.D. page 88
Reloading data page 132

Compression–formed hull construction
Integral plastic basewad
6 or 8–point folded crimp
High brass or brass–plated steel head
209-size primer
Smooth red plastic tube

This is the Winchester Double–A (AA) type hull in 3–inch length. Everything written about the 2–3/4–inch Double A in Reference Notes # 28 applies to the 3–inch length hull. Read Reference Notes # 28 for additional information.

According to a Winchester employee this compression formed hull design has recently been discontinued.

Reference Notes # 15

12–Gauge 3–Inch
Winchester Polyformed Plastic Shell
With White Plastic Basewad
Hull I.D. page 88
Reloading data page 132

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed red plastic tube

The Winchester polyformed shell consists of three parts: a plastic tube, molded plastic basewad and a brass or brass–plated steel. The factory shell has a 6–point folded crimp with a heat seal in the center. When reloaded the handloader will find a small hole in the center of the shell where the original heat seal has been blown away. Generally this hole is not large enough to leak shot, but a drop or two of candle wax will seal it if desired.

The Ribbed plastic hull is red in color and may be found with a high brass or brass–plated metal head. It has a separate white, translucent plastic basewad. This basewad has a very small flash hole and, when depriming, there may be a tendency for the deprime punch to stick in the flash hole. Be careful that the

plastic basewad does not come loose as the deprime punch is removed. If it does and is pulled up in the tube, the hull should be discarded.

Winchester's polyformed hull can be reloaded one or two times, but care must be taken in adjusting the crimp die to prevent the hull from crushing and forming a bulge in the plastic just above the metal head. If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 16

12–Gauge 2–3/4–Inch Cheddite Plastic Shell With Plastic Basewad Hull I.D. page 89 Reloading data page 133

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High and low brass or brass–plated steel head
209–size primer
Ribbed or smooth plastic tube—varied colors

Cheddite is one of the largest manufacturers of new primers and primed component hulls in Europe. According to Cheddite's web site, their production exceeded 900 million empty cases and 1 billion primers in 2003. Many shotshell manufacturers, all over the world, purchase component hulls from Cheddite for loading their branded products. As an example, Estate Cartridge Company was one of the largest manufacturers of loaded shotshells in the US that utilized Cheddite primed cases.

If a manufacturer purchases enough primed cases from Cheddite a specific headstamp will be used. Estate Cartridge Company's loaded shotshell products were identified with their name and gauge on the headstamp. Cheddite's generic headstamp is identified with four stars alternatively spaced with the gauge of the hull in between. Kent, Clever (Mirage), PMC, Kemen, RIO and ACTIV have used Cheddite products in the past for their branded shotshell loads. Some subtle differences in basewad construction have been identified. Reloading data in this manual has been developed specifically for the hulls shown in the full color I.D. section.

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

Cheddite's standard hull consists of three parts: a plastic tube, a separate injection molded plastic basewad and a brass or brass–plated steel head. All are of excellent quality and reloadability. Since component hulls have never been loaded care must be taken in crimping. Check with the manufacturer of your reloader for specific instructions. Generally a six–point closure will work best with a new component hull. Hulls will be found in virtually all gauges including .410 bore and colors will vary.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 17

12–Gauge 2–3/4–Inch Federal Plastic Shell With 7/16" Paper Basewad Hull I.D. page 89 Reloading data page N/A

Reifenhauser process hull construction
Rolled paper basewad
6 or 8–point folded crimp
Low or high brass or brass–plated steel head
209–size primer
Ribbed burgundy plastic tube

WARNING: Always match the height and shape of the Federal hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

Federal's standard field hull consists of three parts: a burgundy–colored plastic tube, a rolled paper basewad and a brass or brass–plated steel head. Most factory loads are non–skived and crimped with a 6–point folded closure. In the past, a "smear" of wax was applied on the crimp for waterproofing purposes. This has been missing in recent years and it is questionable if the wax actually performed any waterproofing at all.

In years past Federal has loaded this shell in several brand names including Game, Field, Super Field, Premium Field, Duck & Pheasant and Hi–Power.

Regardless of whether these loads have low or high metal heads, the internal dimensions are the same and all hulls can be used with reloading data (recipes) listed for this hull. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 18

12–Gauge 2–3/4–Inch Federal Gold Medal One-Piece Plastic Target Shell & Gold Medal Type Hull I.D. page 90 Reloading data page 135

Special one-piece plastic hull construction
Integral plastic basewad
8–point folded crimp––some in 6–point folded crimp (field loads)
Low brass metal head––some with a high brass–plated steel head (field loads)
209-size primer
Ribbed and Smooth burgundy and metallic burgundy plastic tube

Gold Medal is Federal's current one–piece plastic shell with a brass metal head. It is different from other one–piece plastic hulls in that the tube is not tapered on the inside. This design offers the greatest internal capacity of all one–piece plastic hulls. This is a plus for handloader's as heavier loads are available without maximum pressures. Its only drawback is in the light one–ounce loads, where special wads must be used to take up the extra space. Use only the wads listed in the recipes.

Many handloader's feel that Gold Medal may be the best 12 gauge reloadable hull on the market today. Federal has offered some hunting loads but these loads are not cataloged.

There have been a few Duck & Pheasant factory loads that have the Gold Medal type of plastic construction, but the loads do not have skived mouths and use 6–point crimps. This hull also has a high brass–plated steel head.

CAUTION––Prior to reloading inspect your Federal hulls to see if they have a plastic or paper basewad—always match your hulls with the full color I.D. picture to select the appropriate reloading data.

Reference Notes # 19

12–Gauge 2–3/4–Inch Federal Hi-Power Plastic Shell With 9/16" Paper Basewad Hull I.D. page 90 Reloading data page 162

Reifenhauser process hull construction
Rolled paper basewad
6 or 8–point folded crimp
Low or high brass or brass or zinc–plated steel head
209-size primer
Ribbed or smooth burgundy plastic tube

WARNING: Always match the height and shape of the Federal hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

Federal's standard field hull consists of three parts: a burgundy–colored plastic tube, a rolled paper basewad and a brass or brass–plated steel head. Most factory loads are non–skived and crimped with a 6–point folded closure. In the past, a "smear" of wax was applied on the crimp for waterproofing purposes. This has been missing in recent years and it is questionable if the wax actually performed any waterproofing at all.

In years past Federal has loaded this shell in several brand names including Game, Field, Super Field, International Premium Target, Top Gun, League, Premium Field, Duck & Pheasant and Hi–Power. Regardless of whether these loads have low or high metal heads, the internal dimensions are the same and all hulls can be used with reloading data (recipes) listed for this hull. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 20

12–Gauge 2–3/4–Inch Federal Paper Target Shell With Paper Basewad Hull I.D. page 91 Reloading data page 165

Rolled paper hull construction
Rolled paper basewad
6–point folded crimp
Medium brass head
209-size primer
Smooth burgundy paper tube

Federal's burgundy–colored paper shell has a large following among target shooters. They are generally available as a once–fired component at trap and skeet ranges. Compared to some other once–fired hulls these paper "Champs" are expensive. Many handloader's reload this hull once or twice for practice target shooting. Paper tube hulls are susceptible to swelling if they get damp. Care must be taken to keep them dry and to inspect fired hulls for pinhole burn–throughs just above the metal head in the paper tube. High–pressure reloads will also shorten a paper hull's life span. Crimp disintegration and burn throughs are the main cause of failures in this hull. Discard any hulls with these problems.

Some manufacturers offer a special smooth cone crimp starter for paper hulls and it should be used in place of the 6 or 8–point crimp starter. If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press to eliminate this problem. This basic Federal design—a paper tube with a rolled paper basewad, hasn't changed in over twenty–five years.

Reference Notes # 21

12–Gauge 2–3/4–Inch Fiocchi Plastic Target Shell With 10.5mm Plastic Basewad Hull I.D. page 91 Reloading data page 172

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
Brass or brass–plated steel head—brass heights vary
Fiocchi 616 size primer
Ribbed plastic tube in many colors including clear

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

CAUTION: The molded plastic basewad in Fiocchi hulls will vary in height. Generally, Fiocchi "target" load hulls will have a 10mm tall basewad and "hunting" load hulls will have a 7mm tall basewad. Please note the differences in the full color I.D. section.

Please see reference notes # 10 for detailed information on Fiocchi hulls.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 22

12–Gauge 2–3/4–Inch Fiocchi Plastic Shell With 7mm Basewad Hull I.D. page 92 Reloading data page 176

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High or low brass or brass–plated steel head
209-size primer
Ribbed or smooth plastic tube—varied colors

WARNING: Always match the height and shape of the hull's basewad to the correct i.d. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

CAUTION: The molded plastic basewad in Fiocchi hulls will vary in height. Generally, Fiocchi "target" load hulls will have a 10mm tall basewad and "hunting" load hulls will have a 7mm tall basewad. Please note the differences in the full color I.D. section.

Please see reference notes # 10 for detailed information on Fiocchi hulls.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 23

12–Gauge 2–3/4–Inch Remington Nitro Mag SP Plastic Shell With Plastic Basewad Hull I.D. page 92 Reloading data page N/A

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed green or blue (Peters brand) plastic tube

⚠ CAUTION: Special notes regarding reloading Remington "SP" hulls with separate molded plastic basewad in all gauges.

This is Remington's SP (Steel–Plastic) shell that started the plastic revolution in factory loaded shotgun shells during the early 1960's. The design was a great step forward from paper tube hulls. The original SP hull design consisted of three parts: a plastic tube, a molded composition fiber basewad and a steel metal head that is brass plated. Hulls can be found with low or high metal heads and in green, blue, black and red (very old hulls) plastic tube colors. The composition fiber basewad design was discontinued and replaced with molded plastic during the mid 1980's.

Generally in all gauges except .410 bore, the original SP shell was factory loaded with Remington 57 size primers. The smaller diameter 57 component primer, as compared to the 209–size, has long been discontinued.

⚠ WARNING: Recipes are not available for Remington hulls with molded fiber basewads in this manual. If a handloader incurs hulls with fiber basewads they should be discarded.

Currently SP hulls consist of three parts: a plastic tube, a molded plastic basewad and a brass or steel metal head that is either copper, brass or zinc plated.

The astute handloader will notice that several of Remington's I.D. descriptions will identify the name of the hull along with a "yellow plastic basewad." Here's an example—"Remington SP Plastic Shell With Yellow Plastic Basewad." Then in the Reference Notes a mention will be made that the color of the plastic basewad "varies." This is due to the fact that powder manufacturers provided all of the reloading data and hull names were used as designated by the powder manufacturers as well. According to a Remington employee the yellow basewad was originally used for certain lead shot loads and black basewads (usually shorter in height than the yellow) were used in steel shot loads. Since steel shot loads generally required the greatest internal capacity for a ballistically sound load the shorter basewad was used as an identifier. Somewhere over the years this changed and short and tall basewads, in all gauges, were manufactured in different colors—yellow, black and natural (milky white translucent).

The same Remington employee observed that Remington's current plan is to standardize as much as possible to their Unibody design. This has been done in most of the 12, 20 and 28 gauge configurations in target loads—trap, skeet, sporting clays and many field loads as well. Unibody designed hulls are excellent hulls for reloading and handloaders will experience the greatest life and consistency of reloads in these hulls.

If the handloader experiences hull crushes and bulges just above the metal head of SP hull designs during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 24

12–Gauge 2–3/4–Inch Remington One-Piece Premier RTL, STS, Nitro 27 Plastic Target Shell Hull I.D. page 93 Reloading data page 179

Unibody process plastic hull construction
Integral plastic basewad
8–point folded crimp
Low brass head
209-size primer
Smooth green, metallic green or metallic gold (Nitro 27) plastic tube

The current metallic green STS and metallic gold Nitro 27 follow a long line of very successful Remington target shells including the RXP and Blue Magic (Peters brand), both of which have been discontinued for several years. The construction of this new design is of excellent quality and once-fired hulls are highly desired.

Many handloaders now consider the STS and Nitro 27 to be the best 12-gauge hull now available for target and field reloads. A long reload life and consistency are two important considerations. These same handloaders once favored Winchester's AA compression formed hulls (now discontinued) for the same reason.

Reference Notes # 25

12–Gauge 2–3/4–Inch Remington SPELV Plastic Shell With Yellow Plastic Basewad Hull I.D. page 93 Reloading data page N/A

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed green plastic tubes

CAUTION: Before reloading this hull, read Reference Notes # 23 for special information regarding the Remington "SP" design.

This is the Remington SPELV (Special Purpose Extra Large Volume) hull in 2–3/4–inch length. Alliant and other powder manufacturers have developed separate loading data specific to this hull. All information written about the 2–3/4–inch SP hull in Reference Notes # 23 applies to this hull.

Reference Notes # 26

12–Gauge 2–3/4–Inch Remington One-Piece Unibody SP Plastic Shell Hull I.D. page 94 Reloading data page 217

Unibody process plastic hull construction
Integral plastic basewad
6 or 8–point folded crimp
High or low brass or brass-, copper- and zinc–plated steel head
209-size primer
Ribbed green, blue or black plastic tube

Remington's Unibody is factory loaded under a number of different brand names. This hull, similar to the old discontinued RXP, is of one–piece plastic construction and can be found in green, blue and black colors and with a low or high brass or copper-, brass- or zinc–plated steel head. One of the main identifiers of this design is a ribbed body that becomes smooth just ahead of the metal head.

It is a very good hull for the reloader and is easily found. Some of the brand names that Remington has loaded include: Sport Load, Gun Club, Mohawk, Dove & Quail, Duck & Pheasant, Field, Express, Nitro Mag and Premier. Regardless of whether the Unibody has low or high outside brass, it can be used for data listed for this hull.

Reference Notes # 27

12–Gauge 2–3/4–Inch Winchester Polyformed Plastic Shell With White Plastic Basewad Hull I.D. page 94 Reloading data page 219

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
Low or high brass or brass–plated steel head
209-size primer
Ribbed red plastic tube

This hull is at the opposite end of the spectrum from the Double A type. It is Winchester's promotional loading and is made to be sold at a low price, fired and forgotten. It is generally found under one of three different brand names: Dove & Quail, Rabbit & Squirrel and Duck & Pheasant. This hull is also loaded for a couple of large retail operations and private branded with their name.

The Ribbed plastic hull is red in color and may be found with a low or high brass or brass–plated metal head. It has a separate white, translucent plastic basewad. This basewad has a very small flash hole and, when depriming, there may be a tendency for the deprime punch to stick in the flash hole. Be careful that the plastic basewad does not come loose as the deprime punch is removed. If it does and is pulled up in the tube, the hull should be discarded.

Winchester's polyformed hull can be reloaded one or two times, but care must be taken in adjusting the crimp die to prevent the hull from crushing and forming a bulge in the plastic just above the metal head. If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 28

12-Gauge 2-3/4-Inch Winchester Compression Formed Plastic AA & AA-Type Shell Hull I.D. page 95 Reloading data page 221

Compression-formed hull construction
Integral plastic basewad
6 or 8-point folded crimp
Low or high brass or brass-plated steel head
209-size primer
Smooth plastic tube—varied colors

This is Winchester's famous "compression-formed" shell to which handloader's once compared all other hulls. Originally introduced in the mid 1960's, it is the design that made modern shotshell reloading easy to do. The hull is usually red in color (has been produced in black, grey, silver, blue and clear) and is factory loaded in many different brands. The Double A, Double A Handicap, Upland, Super Pigeon, Super-X and Super Double-X hulls--all of which are compression-formed are made of one piece of plastic without a separate basewad. The hull may have either a low or high brass or brass-plated steel head. The internal dimensions of this hull are identical and all of the reloading recipes listed may be used regardless of the brass height.

The handloader may encounter some factory-loaded hulls that were closed with a 6- or 8-point crimp. Most of the 6-point crimps were heat-sealed but are still an excellent hull to reload. The heat seal will be blown away on the initial firing and, when reloaded, the small hole in the center of the crimp can be closed with one or two drops of candle wax if desired.

Originally all AA compression-formed hulls had a brass head. Some factory loads were produced with a brass-plated steel head that should cause no problems for the handloader. As with any hull, inspect the metal head for cracks.

In 2002 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 12 and 20 gauge. Please see Reference Notes # 29 for information on the new "HS" hull construction design that replaced the compression formed design.

Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 8 the following, "Winchester has designed the new 12 and 20-gauge AA high strength hull to reload with the same reloading data as the old AA hull..."

Reference Notes # 29

12-Gauge 2-3/4-Inch Winchester Plastic (New) HS AA Shell With Separate Plastic Basewad Hull I.D. page 95 Reloading data page 221

Reifenhauser process hull construction
Injection molded plastic basewad
8-point folded crimp
Low brass head
209-size primer
Smooth plastic tube—red, grey, silver and possibly other colors

In 2002 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 12 and 20 gauge. Winchester's 2002 annual catalog, on page 4, announced in print the following, "For nearly 40 years, AA Target Loads have reigned as the standard of excellence and overwhelming choice of serious target shooters the world over. The improved AA's will carry on the standard for years to come. Each 12 and 20 gauge AA load features improved components and an innovative, high strength tube construction, increased reloadability and tighter bird busting patterns." Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 8 the following, "Winchester has designed the new 12 and 20-gauge AA high strength hull to reload with the same reloading data as the old AA hull. However, on some reloading machines, even though the components and reloading data are the same, there may need to be a minor adjustment made to the reloading machine to optimize load fit and appearance."

The new HS design consists of three-pieces—a plastic tube, an injection molded plastic basewad and a brass head. This straight-walled hull with a low internal basewad, will be a good choice for the handloader who wants to load heavier loads without experiencing increased pressures as would have been the result with the compression formed design.

Reference Notes # 30

16–Gauge 2–3/4–Inch Federal Hi-Power Plastic Shell With Paper Basewad Hull I.D. page 96 Reloading data page 258

Reifenhauser process hull construction
Rolled paper basewad
6 or 8–point folded crimp
High brass or brass–plated steel head
209-size primer
Ribbed purple plastic tube

This is Federal's standard three–piece hull in 16–gauge loadings. It consists of a purple plastic tube, a rolled paper basewad and a brass–plated steel head. A straight–walled hull with a low internal basewad, this hull is a good choice for the reloader who wants to load heavier loads in 16–gauge. For more information on this hull design, read Reference Notes # 17, which is the 12–gauge version. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 31

16–Gauge 2–3/4–Inch Fiocchi Plastic Shell With Plastic Basewad Hull I.D. page 96 Reloading data page 259

Reifenhauser process hull construction
Rolled paper basewad
6–point folded crimp
Low or high brass–plated steel head
209-size primer
Ribbed plastic tube—varied colors

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

CAUTION: The molded plastic basewad in Fiocchi hulls will vary in height. Generally, the Fiocchi " target" load hulls will have a 10mm tall basewad and the "hunting" load hulls will have a 7mm tall basewad. Please note the differences in the full color I.D. section.

Please see reference notes # 10 for detailed information on Fiocchi hulls.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 32

16–Gauge 2–3/4–Inch Remington SP Plastic Shell With Plastic Basewad Hull I.D. page 96 Reloading data page 260

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
8–point crimp
Low or high brass–plated steel head
209-size primer
Ribbed green or blue plastic tube

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

This is the Remington SP hull in 16––gauge. All information written about the 2–3/4–inch SP hull in Reference Notes # 23 applies to this hull.

Reference Notes # 33

16–Gauge 2–3/4–Inch Winchester Compression Formed Plastic AA–Type Shell Hull I.D. page 96 Reloading data page 261

Compression–formed process hull construction
Integral plastic basewad
6 or 8–point folded crimp
Low or high brass or brass–plated steel head
209-size primer
Smooth red plastic tube

This is the Double A type hull in 16–gauge. It is a red plastic hull with a one–piece body and a brass or

brass–plated steel head. The Upland brand has a low metal head and the Super–X brand has a high metal head. There are both 6– and 8–point crimps in each brand.

For more information on this design read Reference Notes # 28 on the 12–gauge 2–3/4 inch compression–formed version.

According to a Winchester employee this compression formed hull design in 16–gauge has recently been discontinued.

Reference Notes # 34

20–Gauge 3–Inch
Federal Hi-Power Plastic Shell
With Paper Basewad
Hull I.D. page 97
Reloading data page 261

Reifenhauser process hull construction
Rolled paper basewad
6–point folded crimp
High brass–plated steel head
209 size primer
Ribbed yellow plastic tube

Federal's 3–inch 20–gauge hull is similar in design to the 12–gauge. For more information on this design, read Reference Notes # 17 on the 12–gauge version. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 35

20–Gauge 3–Inch
Remington Premier Plastic Shell
Hull I.D. page 97
Reloading data page 263

Unibody process plastic hull construction
Integral plastic basewad
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Smooth yellow plastic tube

Remington's Unibody hulls have a one–piece plastic tube with a crimped–on metal head. This is the 3–inch version of the Unibody design. It is a very good hull for the reloader and is a great improvement over the old style molded fiber basewad hull.

Reference Notes # 36

20–Gauge 3–Inch
Winchester Compression Formed Plastic
AA–Type Shell
Hull I.D. page 97
Reloading data page 264

Compression–formed process hull construction
Integral plastic basewad
6 or 8–point folded crimps
High brass or brass–plated steel head
209 size primer
Smooth yellow plastic tube

Winchester's 3–inch 20–gauge hull is similar in design to the 12–gauge Double A type. For more information on this design, read Reference Notes # 28 on the 12–gauge version.

This 20–gauge hull will be found in Super–X and Super Double–X loadings. According to a Winchester employee this compression formed hull design has recently been discontinued.

Reference Notes # 37

20–Gauge 2–3/4–Inch
Cheddite Plastic Shell With Plastic Basewad
Hull I.D. page 97
Reloading data page 266

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Ribbed or smooth plastic tube—varied colors

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

All information written about the 2–3/4–inch Cheddite hull in Reference Notes # 16 applies to this hull—please see Reference Notes # 16 for more information on Cheddite hulls.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 38

20–Gauge 2–3/4–Inch Federal Plastic Target Shell With Paper Basewad Hull I.D. page 98 Reloading data page 267

Reifenhauser process hull construction
Rolled paper basewad
8–point folded crimp
Low brass head
209 size primer
Ribbed yellow plastic tube

This is Federal's standard three–piece hull in 20–gauge loadings. It consists of a yellow plastic tube, a rolled paper basewad and a brass–plated steel head. A straight–walled hull with a low internal basewad, this hull is a good choice for the reloader who wants to load heavier loads in 20–gauge.

Federal's 20–gauge plastic target hull is identical to the 20–gauge Hi–Power hull other than the crimp and metal head. The plastic target hull (8–point skived crimp) has a low brass metal head and the Hi–Power hull (6–point unskived crimp) has a low or high brass or brass plated steel head. For more information on this type of hull design, read Reference Notes #17 on the 12–gauge version of Federal's plastic hulls.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloader, to eliminate this problem. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

Reference Notes # 39

20–Gauge 2–3/4–Inch Fiocchi Plastic Shell With Plastic Basewad Hull I.D. page 98 Reloading data page 273

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Ribbed plastic tube—varied colors

WARNING: Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate reloading data. Sectioning the hull is required to do this.

CAUTION: The molded plastic basewad in Fiocchi hulls will vary in height. Generally, the Fiocchi "target" load hulls will have a 10mm tall basewad and the "hunting" load hulls will have a 7mm tall basewad. Please note the differences in the full color I.D. section.

Please see reference notes # 10 for detailed information on Fiocchi hulls.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloading press, to eliminate this problem.

Reference Notes # 40

20–Gauge 2–3/4–Inch Remington Premier, STS, RXP Plastic Target Shell Hull I.D. page 98 Reloading data page 275

Unibody process hull construction
Integral plastic basewad
8–point folded crimp
Low brass head
209 size primer
Ribbed and smooth yellow plastic tube

The STS is the current 20–gauge target load produced by Remington. The one–piece yellow plastic tube has a low brass head and will have the name Remington or Peters on one side of the hull and Skeet on the other side just above the metal head. Some of these

hulls were sold as a component in boxes of 100 until a few years ago. There was no name or other information imprinted on the component hulls. The internal volume of the STS, Premier and RXP are the same—all use the same reloading data.

The construction of this new design is of excellent quality and once-fired hulls are highly desired. Many handloaders now consider the STS to be the best 20-gauge hull now available for target and field reloads. A long reload life and consistency are two important considerations. These same handloaders once favored Winchester's AA compression formed hulls (now discontinued) for the same reason.

Reference Notes # 41

20–Gauge 2–3/4–Inch Winchester Compression Formed Plastic AA & AA-Type Shell Hull I.D. page 99 Reloading data page 281

Compression–formed process hull construction
Integral plastic basewad
6 or 8–point folded crimp
Low or high brass or brass–plated steel head
209 size primer
Smooth yellow plastic tubes (original tubes were red)

The 20–gauge version of Winchester's Double A hull design is an excellent choice for the handloader. It has good life and produces fine reloads. All that has been said about the 12–gauge Double A pertains to the 20–gauge. Read Reference Notes # 28 for more information on this hull design.

When introduced in the mid 1960's the original 20–gauge factory–loaded shells were red. The current color is yellow and has been for many years. Winchester factory loads this hull in Double A, Upland and Super–X Brands. A few "Q" loads are produced on special order for some of Winchester's wholesale accounts. The most popular "Q" load is a one–ounce load with target–grade extra hard shot in a low brass Double–A hull with an 8–point folded crimp.

In 2002 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 12 and 20 gauge. Please see Reference Notes # 42 for information on the new "HS" hull construction design that replaced the compression formed design.

Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 8 the following, "Winchester has designed the new 12 and 20–gauge AA high strength hull to reload with the same reloading data as the old AA hull..."

Reference Notes # 42

20–Gauge 2–3/4–Inch Winchester Plastic (New) HS AA Shell With Separate Plastic Basewad Hull I.D. page 99 Reloading data page 281

Reifenhauser process hull construction
Injection molded plastic basewad
8–point folded crimp
Low brass head
209 size primer
Smooth yellow plastic tube

In 2002 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 12 and 20 gauge. Winchester's 2002 annual catalog, on page 4, announced in print the following, "For nearly 40 years, AA Target Loads have reigned as the standard of excellence and overwhelming choice of serious target shooters the world over. The improved AA's will carry on the standard for years to come. Each 12 and 20 gauge AA load features improved components and an innovative, high strength tube construction, increased reloadability and tighter bird busting patterns."

Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 8 the following, "Winchester has designed the new 12 and 20–gauge AA high strength hull to reload with the same reloading data as the old AA hull. However, on some reloading machines, even though the components and reloading data are the same, there may need to be a minor adjustment made to the reloading machine to optimize load fit and appearance."

The new HS design consists of three–pieces—a red plastic tube, an injection molded plastic basewad and a brass head. This straight–walled hull with a low internal basewad, will be a good choice for the reloader who wants to load heavier loads without experiencing increased pressures as would have been the result with the compression formed design.

Reference Notes # 43

28–Gauge 2–3/4–Inch Federal Plastic Target Shell With Paper Basewad

Hull I.D. page 99
Reloading data page 283

Reifenhauser process hull construction
Rolled paper basewad
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Ribbed burgundy plastic tube

This is Federal's standard three–piece hull in 28–gauge loadings. It consists of a burgundy plastic tube, a rolled paper basewad and a brass–plated steel head. A straight–walled hull with a low internal basewad, this hull has a lot of internal capacity when compared to other 28–gauge hulls and is easy to reload with heavier amounts of shot.

Federal's 28–gauge plastic target hull is identical to the 28–gauge Hi–Power hull other than the crimp. The plastic target hull has a skived crimp and the Hi–Power hull has an unskived crimp. For more information on this type of hull design, read Reference Notes #17 on the 12–gauge version of Federal's plastic hulls.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloader, to eliminate this problem. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

Reference Notes # 44

28–Gauge 2–3/4–Inch Remington One-Piece Plastic Premier STS Shell

Hull I.D. page 100
Reloading data page 286

Unibody process plastic hull construction
Integral plastic basewad
6–point folded crimp
High brass head
209 size primer
Smooth metallic green plastic tube

Remington's STS 28–gauge shell consists of two parts: a metallic green plastic tube with an integral plastic basewad and a brass head.

Many handloaders now consider the STS to be the best hull now available for target and field reloads. A long reload life and consistency are two important considerations. These same handloaders once favored Winchester's AA compression formed hulls (now discontinued) for the same reason.

Alliant and other powder manufacturers have determined the Remington 28 gauge STS to be of a different internal capacity from the Remington RTL (see Reference Notes # 45) hull—therefore, different reloading data is required.

Reference Notes # 45

28–Gauge 2–3/4–Inch Remington One-Piece RTL Plastic Target Shell

Hull I.D. page 100
Reloading data page 288

Unibody process plastic hull construction
Integral plastic basewad
6–point folded crimp
High brass head
209 size primer
Smooth green plastic tube

Remington's RTL 28–gauge shell consists of two parts: a smooth green plastic tube with an integral plastic basewad and a brass head.

The 28 gauge RTL was discontinued a few years ago and current Remington production is now the new STS designed shell (see Reference Notes # 44).

Alliant and other powder manufacturers have determined the Remington 28 gauge RTL to be of a different internal capacity from the Remington STS (see Reference Notes # 44) hull—therefore, different reloading data is required.

Reference Notes # 46

28–Gauge 2–3/4–Inch Winchester Compression Formed Plastic AA & AA-Type Shell

Hull I.D. page 100
Reloading data page 289

Compression–formed plastic hull construction
Integral plastic basewad
6–point crimp

High brass head
209 size primer
Smooth red plastic tube

WARNING: Loading data for Winchester's new 28–gauge HS hull design is not interchangable with 28–gauge compression formed hull design data.

Winchester's 28–gauge compression formed hull is similar in design to the 12–gauge. For more information on this design, read Reference Notes # 5 on the 12–gauge version.

Factory loads in this hull can be found in AA and Super–X Brands. **SPECIAL NOTE:** This hull is about 3/32–inch shorter than the Federal and Remington 28–gauge hulls. Adjustment for the crimp die may be necessary to perfect the finished crimp on this hull. Check with the reloader's manufacturer for specific information on how to correct this problem.

In 2003 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 28 gauge and .410 bore. Please see Reference Notes # 47 for information on the new "HS" hull construction design that replaced the compression formed design.

Reference Notes # 47

28–Gauge 2–3/4–Inch Winchester Plastic (New) HS AA Shell With Separate Plastic Basewad Hull I.D. page 100 Reloading data page 291

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass head
209 size primer
Smooth red plastic tube

WARNING: Loading data for Winchester's new 28–gauge HS hull design is not interchangable with 28–gauge compression formed hull design data.

In 2003 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 28 gauge and .410 bore. Winchester's 2003 annual catalog, on page 18, announced in print the following, "Since their introduction almost 40 years ago, AA Target Loads have reigned as the standard of excellence and overwhelming choice of serious target shooters the world over.

The innovative NEW High Strength AA HS shell, first seen in 12 and 20 gauge, has now been expanded to include 28 gauge and 410 gauge (sic). The AA HS loads have raised the performance bar in target busting performance as well as outstanding reloadability capability."

The new HS design consists of three pieces—a red plastic tube, an injection molded plastic basewad and a brass head. This straight–walled hull with a low internal basewad, will be a good choice for the reloader who wants to load heavier loads without experiencing increased pressures as would have been the result with the compression formed design.

Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 13 the following, "Winchester 410 and 28 gauge HS hulls must be reloaded with the red WAA410HS and WAA28HS wads and the new HS hull reload data. Non Winchester HS hulls should be reloaded with the with the white Winchester wad WAA41 in 410 and pink Winchester wad WAA28 in 28 gauge using published reloading data for those wads."

Reference Notes # 48

410 Bore 3–Inch Federal Plastic Shell With 7/16" Paper Basewad Hull I.D. page 101 Reloading data page 293

Reifenhauser process hull construction
Rolled paper basewad
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Ribbed burgundy plastic tube

Federal's 3" .410–bore hull is of typical construction with a burgundy plastic tube, a rolled paper basewad and a crimped–on metal head. More information on this hull design can be found in Reference Notes # 13 on the 12–gauge version.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloader, to eliminate this problem. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

Reference Notes # 49

410 Bore 3-Inch
Remington Plastic Shell
With Plastic Basewad
Hull I.D. page 101
Reloading data page 293

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6-point folded crimp
High brass or brass-plated steel head
209 size primer
Ribbed green and blue plastic tube

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

Remington's 3-inch .410-bore hull is of typical SP design and construction. It is manufactured in three parts: a green (Remington) and blue (Peters) plastic tube, an injection molded plastic basewad and a brass or brass-plated steel head. The basewad may be found in black, yellow or green colors.

Reference Notes # 50

410 Bore 3-Inch
Winchester Compression Formed
Plastic AA-Type Shell
Hull I.D. page 101
Reloading data page 294

Compression-formed hull construction
Integral plastic basewad
6-point folded crimp
High brass head
209 size primer
Smooth red plastic tube

WARNING: Loading data for Winchester's new .410 bore HS hull design is not interchangable with .410 bore compression formed hull design data.

The .410 bore Winchester factory shell is the basic compression-formed design consisting of a red, one-piece plastic tube with a crimped-on metal head. This hull was factory loaded in both AA and Super-X brand.

In 2003 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 28-gauage and .410 bore. Please see Reference Notes # 51 for information on the new "HS" hull construction design that replaced the compression formed design.

Reference Notes # 51

410 Bore 3-Inch
Winchester Plastic (New) HS AA Shell
With Separate Plastic Basewad
Hull I.D. page 101
Reloading data page 294

Reifenhauser process hull construction
Injection molded plastic basewad
6-point folded crimp
High brass head
209 size primer
Smooth red plastic tube

WARNING: Loading data for Winchester's new .410 bore HS hull design is not interchangable with .410 bore compression formed hull design data.

In 2003 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 28 gauge and .410 bore. Winchester's 2003 annual catalog, on page 18, announced in print the following, "Since their introduction almost 40 years ago, AA Target Loads have reigned as the standard of excellence and overwhelming choice of serious target shooters the world over.

The innovative NEW High Strength AA HS shell, first seen in 12 and 20 gauge, has now been expanded to include 28 gauge and 410 gauge (sic). The AA HS loads have raised the performance bar in target busting performance as well as outstanding reloadability capability."

The new HS design consists of three-pieces—a red plastic tube, an injection molded plastic basewad and a brass or brass-plated steel head. This straight-walled hull with a low internal basewad, will be a good choice for the reloader who wants to load heavier loads without experiencing increased pressures as would have been the result with the compression formed design.

Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 13 the following, "Winchester 410 and 28 gauge HS hulls must be reloaded with the red WAA410HS and WAA28HS wads and the new HS hull reload data. Non Winchester HS hulls should be reloaded with the with the white Winchester wad WAA41 in 410 and pink Winchester wad WAA28 in 28 gauge using published reloading data for those wads."

Reference Notes # 52

410 Bore 2–1/2–Inch
Federal Plastic Shell With Paper Basewad
Hull I.D. page 102
Reloading data page 294

Reifenhauser process hull construction
Rolled paper basewad
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Ribbed burgundy plastic tube

Federal's .410-bore hull is of typical construction with a burgundy plastic tube, a rolled paper basewad and a crimped–on metal head. More information on this hull design can be found in Reference Notes # 17 on the 12–gauge version.

If the handloader experiences hull crushes or bulges just above the metal head during the crimping process, read the manufacturer's crimp die adjustment instructions, of your reloader, to eliminate this problem. This basic Federal design—a plastic tube with a rolled paper basewad, hasn't changed in over twenty–five years.

Reference Notes # 53

410 Bore 2–1/2–Inch
Remington Plastic Premier STS Shell
With Plastic Basewad
Hull I.D. page 102
Reloading data page 295

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Ribbed metallic green plastic tube

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington "SP" design.

The Remington .410 Bore hull is of typical SP design and construction. It is manufactured in three parts: a metallic green plastic tube, an injection molded plastic basewad and a brass or brass–plated steel head. The basewad may be found in black, yellow or green colors.

Reference Notes # 54

410 Bore 2–1/2–Inch
Remington SP Plastic Shell
With Plastic Basewad
Hull I.D. page 102
Reloading data page 295

Reifenhauser process hull construction
Injection molded plastic basewad—varied colors
6–point folded crimp
High brass or brass–plated steel head
209 size primer
Ribbed green and blue plastic tube

CAUTION: Before reloading this hull, read reference notes # 23 for special information regarding the Remington"SP" design.

The Remington .410 Bore hull is of typical SP design and construction. It is manufactured in three parts: a green (Remington) and blue (Peters) plastic tube, an injection molded plastic basewad and a brass or brass–plated steel head. The basewad may be found in black, yellow or green colors.

Reference Notes # 55

410 Bore 2–1/2–Inch
Winchester Compression Formed Plastic
AA & AA-Type Shell
Hull I.D. page 102
Reloading data page 296

Compression–formed process hull construction
Integral plastic basewad
6–point folded crimp
High brass head
209 size primer
Smooth red plastic tube

WARNING: Loading data for Winchester's new .410 bore HS hull design is not interchangable with .410 bore compression formed hull design data.

The .410 bore Winchester factory shell is of the basic compression–formed plastic design consisting of a red, one–piece plastic tube with a crimped–on brass head. They are loaded by Winchester in the Double A skeet and Super–X Brands but the hull is the same.

In 2003 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 28 gauge and .410 bore. Please see Reference Notes # 56 for information on the new "HS" hull construction design that replaced the compression formed design.

Reference Notes # 56

410 Bore 2–1/2–Inch
Winchester Plastic (New) HS AA Shell
With Separate Plastic Basewad
Hull I.D. page 102
Reloading data page 297

Reifenhauser process hull construction
Injection molded plastic basewad
6–point folded crimp
High brass head
209 size primer
Smooth red plastic tube

⚠ WARNING: Loading data for Winchester's new .410 bore HS hull design is not interchangable with .410 bore compression formed hull design data.

In 2003 the compression formed Winchester AA hull design was, with little fanfare, discontinued in both 28 gauge and .410 bore. Winchester's 2003 annual catalog, on page 18, announced in print the following, "Since their introduction almost 40 years ago, AA Target Loads have reigned as the standard of excellence and overwhelming choice of serious target shooters the world over.

The innovative NEW High Strength AA HS shell, first seen in 12 and 20 gauge, has now been expanded to include 28 gauge and 410 gauge (sic). The AA HS loads have raised the performance bar in target busting performance as well as outstanding reloadability capability."

The new HS design consists of three–pieces—a red plastic tube, an injection molded plastic basewad and a brass head. This straight–walled hull with a low internal basewad, will be a good choice for the reloader who wants to load heavier loads without experiencing increased pressures as would have been the result with the compression formed design.

Winchester's Reloading Components Manual, 2003 Edition, announced in print on page 13 the following, "Winchester 410 and 28 gauge HS hulls must be reloaded with the red WAA410HS and WAA28HS wads and the new HS hull reload data. Non Winchester HS hulls should be reloaded with the with the white Winchester wad WAA41 in 410 and pink Winchester wad WAA28 in 28 gauge using published reloading data for those wads."

Section 3 - Reloading Data

Reloading Data (Recipes)—Choose the recipe best suited for your requirements. The actual procedure of choosing a load is discussed in this chapter.

WARNING: Always refer to the double check list at the end of this chapter before actual reloading.

Lead Shot Data

About the lead reloading data in this section

CAUTION! Do not reload any shotshells until you read and understand the contents in this manual.

WARNING! Data shown in this section must only be used with lead shot.

Ballistic data in this section was developed in the Alliant, Hodgdon, IMR and Winchester ballistics laboratories using listed components under strictly controlled conditions.

- Substitutions of components could cause excessive or dangerous pressures, which could damage or destroy your firearm or cause serious personal injury or even death to the user and/or bystanders—therefore, NEVER substitute components when loading shotshells using this data.
- Your reloads must contain the exact combinations listed in this manual. NEVER EXCEED charge recommendations in this manual.
- Both powder charge and lead shot charge should be checked frequently with a quality scale to insure weight compliance to the load data.
- Shotshell cases (hulls) that cannot be positively identified should not be reloaded. Contact the manufacturer and request additional identifying information.
- Always refer to the double check list at the end of this chapter before actual reloading.
- Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate lead reloading data. Sectioning the hull is required to do this.

You must also always remember:

1. Establish a routine for reloading. It will result in more uniform loads and less chance of error.
2. Some primers are more powerful than others (they produce more gas at a higher temperature). Use only the primers specified herein.
3. Shotshell wads differ in their sealing ability. Use only the load combinations specified herein.
4. Use only the brands of powder and components shown in the data sections. Do not substitute other types.
5. Discharging firearms in poorly ventilated areas, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to cause birth defects, reproductive harm, and other serious physical injury. Have adequate ventilation at all times. Wash hands and face thoroughly after handling and before coming in contact with food, chewing materials, and smoking material.

Regarding the use of wad fillers/spacers:

Spacer or filler wads serve the purpose of raising the shot column to a level that will allow for the forming of a good crimp. If a space filler is required for a particular load, the thickness and location of that filler will be indicated in the "Wad" column. As an example, it might be described in the following manner: "Win AA12R + 2- .135" cards under shot" or "Rem RP12 + 1/8" felt spacer over shot" or "Ballistic Products #3221000 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup" or "Precision Reloading TUFW105 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup."

Filler wad/spacers can be stacked if necessary and the number needed may vary depending on the size of shot being used. If your crimp dishes in a bit, or bulges, you can add to or reduce the number of spacers to improve the crimp. Only slight adjustments, if any, will be necessary for this reason. Alliant does not recommend the addition of shot buffer to any of their loading data.

Alliant recommends that commercially available shotshell sealant be applied to both the primer and crimp areas to prevent moisture penetration.

Filler wad/spacers, shotshell primer/crimp sealant and additional information for handloaders is available from the following specialty reloading supply companies:

Ballistic Products, Inc.
Box 293
Corcoran, MN 55340
888/273–5623
www.ballisticproducts.com

Precision Reloading, LLC
124 S. Main ST.
Mitchell, SD 57301
605/996–9984
www.precisionreloading.com

Reloading Specialties, Inc.
Box 1130
Pine Island, MN 55963
507/356–8500

10 Gauge 3 ½" Lead Shot Load Data

Federal Plastic Target Shell (With Fiber Basewad)

Hull #1

10 Gauge 3 ½"

Hull I.D. Page 84
Reference Notes Page 103

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	CCI 209M	Green Dot	29.5	Rem SP10 + 6-20 Ga .135" Cards Under Shot	1,265	8,300
1 1/4	Win 209	Green Dot	29.0	Rem SP10 + 6-20 Ga .135" Cards Under Shot	1,265	8,800
1 5/8	CCI 209M	Blue Dot	45.0	Rem SP10 + 4-20 Ga .135" Cards Under Shot	1,285	8,000
1 5/8	Win 209	Blue Dot	45.5	Rem SP10 + 4-20 Ga .135" Cards Under Shot	1,285	8,300
1 5/8	CCI 209M	Herco	36.0	Rem SP10 + 4-20 Ga .135" Cards Under Shot	1,285	10,300
1 7/8	CCI 209M	Blue Dot	45.5	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,270	9,900
1 7/8	Win 209	Blue Dot	45.5	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,270	10,200
2	CCI 209M	HS-6	40.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,165	9,900
2	CCI 209M	HS-7	43.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,165	10,200
2	Fed 209A	SR4756	37.0	Rem SP10 + 2-20 Ga .125" Cards Under Shot	1,175	10,800
2	Fed 209A	800-X	32.0	Rem SP10 + 4-20 Ga 125" Cards Under Shot	1,180	10,900
2	CCI 209M	Blue Dot	43.5	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,210	9,200
2	Win 209	Blue Dot	44.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,210	9,400
2	Rem 209P	SR4756	41.5	Rem SP10 + 2-20 Ga .125" Cards Under Shot	1,230	10,800
2	CCI 209M	Longshot	39.4	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,250	9,600
2	Fed 209A	Longshot	40.5	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,250	9,900
2	Fed 209A	Longshot	41.2	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,300	11,000
2 1/4	Fed 209A	SR4756	33.0	Rem SP10 + 2-20 Ga .125" Cards Under Shot	1,065	10,600
2 1/4	Fed 209A	800-X	29.0	Rem SP10 + 2-20 Ga .125" Cards Under Shot	1,085	10,700
2 1/4	CCI 209M	Blue Dot	42.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,165	9,800
2 1/4	Win 209	Blue Dot	42.5	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,165	10,200
2 1/4	Win 209	HS-7	40.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,165	10,300
2 1/4	Rem 209P	Longshot	34.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,250	10,300
2 1/4	Fed 209A	Longshot	33.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,250	10,500
2 1/4	CCI 209M	Longshot	33.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,250	10,800

10 Gauge 3 ½" Lead Shot Load Data

Remington SP Plastic Shell (With Yellow Plastic (Tall) Basewad)

Hull #2

10 Gauge 3 ½"

Hull I.D. Page 84
Reference Notes Page 103

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	CCI 209M	Unique	31.0	Rem SP10 + 6-20 Ga .135" Cards Under Shot	1,265	7,500
1 1/4	Win 209	Unique	31.0	Rem SP10 + 6-20 Ga .135" Cards Under Shot	1,265	7,600
1 1/4	CCI 209M	Green Dot	28.5	Rem SP10 + 6-20 Ga .135" Cards Under Shot	1,265	8,800
1 1/4	Win 209	Green Dot	29.0	Rem SP10 + 6-20 Ga .135" Cards Under Shot	1,265	8,800
1 5/8	CCI 209M	Blue Dot	43.5	Rem SP10 + 4-20 Ga .135" Cards Under Shot	1,285	8,500
1 5/8	Win 209	Blue Dot	44.0	Rem SP10 + 4-20 Ga .135" Cards Under Shot	1,285	8,500
1 7/8	Win 209	Blue Dot	44.5	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,270	9,100
1 7/8	CCI 209M	Blue Dot	44.0	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,270	9,800
2	Rem 209P	SR7625	32.5	Rem SP10 + 3-20 Ga .125" Cards Under Shot	1,115	10,800
2	Rem 209P	800-X	30.0	Rem SP10 + 4-20 Ga .125" Cards Under Shot	1,145	10,900
2	CCI 209M	HS-6	40.0	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,165	11,000
2	CCI 209M	HS-7	43.0	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,165	11,000
2	Win 209	Longshot	38.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,200	10,700

Hull #2 (Continued)

10 Gauge 3 ½"

Hull I.D. Page 84

Reference Notes Page 103

Remington SP Plastic Shell (With Yellow Plastic (Tall) Basewad)

10

10 Gauge 3 ½" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
2	Fed 209A	Longshot	36.5	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,200	11,000
2	Win 209	Blue Dot	42.5	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,210	10,100
2	CCI 209M	Blue Dot	42.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,210	10,400
2	Rem 209P	SR4756	39.5	Rem SP10 + 4-20 Ga .125" Cards Under Shot	1,210	10,800
2 1/4	Rem 209P	800-X	28.0	Rem SP10 + 3-20 Ga .125" Cards Under Shot	1,055	10,800
2 1/4	Rem 209P	SR4756	34.5	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,095	10,900
2 1/4	CCI 209M	Blue Dot	40.5	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,165	10,400
2 1/4	Win 209	Blue Dot	41.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,165	10,500
2 1/4	Win 209	HS-7	40.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,165	10,800
2 1/4	Rem 209P	Longshot	33.5	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,250	10,800
2 1/4	CCI 209M	Longshot	33.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,250	11,000

Hull #4

10 Gauge 3 ½"

Hull I.D. Page 85

Reference Notes Page 104

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

10

10 Gauge 3 ½" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	CCI 209M	Green Dot	28.0	Rem SP10 + 5-20 Ga .135" Cards Under Shot	1,265	8,500
1 1/4	Win 209	Green Dot	28.5	Rem SP10 + 5-20 Ga .135" Cards Under Shot	1,265	8,600
1 5/8	CCI 209M	Blue Dot	44.5	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,285	8,700
1 5/8	Win 209	Blue Dot	45.0	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,285	8,800
1 5/8	CCI 209M	Herco	35.5	Rem SP10 + 3-20 Ga .135" Cards Under Shot	1,285	10,400
1 7/8	CCI 209M	Blue Dot	45.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,270	9,800
1 7/8	Win 209	Blue Dot	45.5	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,270	10,200
2	CCI 209M	HS-7	42.5	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,165	10,600
2	CCI 209M	HS-6	40.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,165	10,700
2	CCI 209M	Blue Dot	43.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,210	9,400
2	Win 209	Blue Dot	43.5	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,210	9,500
2	Win 209	800-X	35.0	Rem SP10 + 2-20 Ga .125" Cards Under Shot	1,230	10,800
2	Win 209	SR4756	42.0	Rem SP10 + 1-20 Ga .125" Cards Under Shot	1,245	10,700
2	Win 209	Longshot	38.6	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,250	10,200
2	CCI 209M	Longshot	37.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,250	10,900
2	Fed 209A	Longshot	37.0	Rem SP10 + 2-20 Ga .135" Cards Under Shot	1,250	11,000
2 1/4	Win 209	SR4756	37.0	Rem SP10	1,130	11,000
2 1/4	Win 209	800-X	32.0	Rem SP10	1,135	10,900
2 1/4	CCI 209M	Blue Dot	41.5	Rem SP10	1,165	10,500
2 1/4	Win 209	Blue Dot	42.0	Rem SP10	1,165	10,500
2 1/4	CCI 209M	HS-7	40.0	Rem SP10 + 1-20 Ga .135" Cards Under Shot	1,165	11,000
2 1/4	Fed 209A	Longshot	31.5	Rem SP10	1,200	10,800
2 1/4	Win 209	Longshot	37.5	Rem SP10	1,200	10,900
2 1/4	CCI 209M	Longshot	33.5	Rem SP10	1,200	11,000

12

12 Gauge 3 ½"
Lead Shot Load Data

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

Hull #5

12 Gauge 3 ½"

Hull I.D. Page 85
Reference Notes Page 104

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	CCI 209M	Blue Dot	41.0	Win AA12SL	1,200	8,900
1 7/8	Win 209	Blue Dot	40.0	Fed 12SO	1,200	9,000
1 7/8	CCI 209M	Blue Dot	41.0	Fed 12SO	1,200	9,100
1 7/8	CCI 209M	Blue Dot	40.5	Rem R12L	1,200	9,600
1 7/8	Rem 209P	Longshot	35.3	Win AA12SL	1,200	12,300
1 7/8	Rem 209P	Longshot	35.5	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,200	12,400
1 7/8	Fed 209A	Longshot	35.0	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,200	12,900
1 7/8	Fed 209A	Longshot	34.8	Win AA12SL	1,200	13,300
1 7/8	Rem 209P	Longshot	37.8	Fed 12SO + 1-20 Ga .135" Cards Under Shot	1,250	11,400
1 7/8	Rem 209P	Longshot	37.3	Win AA12L + 1-20 Ga .135" Cards Under Shot	1,250	12,100
1 7/8	Fed 209A	Longshot	36.3	Fed 12SO + 1-20 Ga .135" Cards Under Shot	1,250	12,200
1 7/8	Fed 209A	Longshot	37.0	Win AA12L + 1-20 Ga .135" Cards Under Shot	1,250	12,300
1 7/8	Rem 209P	Longshot	36.8	Win AA12SL + 1-20 Ga .135" Cards Under Shot	1,250	12,400
1 7/8	Fed 209A	Longshot	37.0	Win AA12SL + 1-20 Ga .135" Cards Under Shot	1,250	12,500
1 7/8	CCI 209M	Blue Dot	43.0	Win AA12SL	1,255	9,500
1 7/8	CCI 209M	Blue Dot	43.0	Fed 12SO	1,255	9,800
1 7/8	CCI 209M	Blue Dot	42.5	Rem R12L	1,255	10,100
1 7/8	Win 209	Blue Dot	42.5	Fed 12SO	1,255	10,100
1 7/8	Rem 209P	Longshot	39.0	Win AA12SL + 1-20 Ga .135" Cards Under Shot	1,300	13,000
1 7/8	Rem 209P	Longshot	39.4	Fed 12SO + 1-20 Ga .135" Cards Under Shot	1,300	13,300
1 7/8	Rem 209P	Longshot	39.2	Win AA12L + 1-20 Ga .135" Cards Under Shot	1,300	13,400
2	CCI 209M	Blue Dot	42.5	Win AA12SL	1,220	9,800
2	Win 209	Blue Dot	41.0	Fed 12SO	1,220	9,900
2	CCI 209M	Blue Dot	42.0	Rem R12L	1,220	10,000
2	CCI 209M	Blue Dot	42.5	Fed 12SO	1,220	10,000
2 1/4	Win 209	Blue Dot	38.0	Fed 12S4	1,150	10,900
2 1/4	CCI 209M	Blue Dot	38.5	Fed 12S4	1,150	11,100
2 1/4	CCI 209M	Blue Dot	38.5	Win AA12F114	1,150	11,100
2 1/4	CCI 209M	Blue Dot	39.5	Rem SP12	1,150	11,200
2 1/4	Rem 209P	Longshot	33.0	Rem RXP	1,150	12,600
2 1/4	Rem 209P	Longshot	33.0	Fed 12S3	1,150	12,900
2 1/4	Fed 209A	Longshot	31.0	Rem RXP	1,150	13,200
2 1/4	Rem 209P	Longshot	33.0	Win AA12	1,150	13,400
2 1/4	Fed 209A	Longshot	32.0	Fed 12S3	1,150	13,700
2 1/4	Fed 209A	Longshot	31.0	Win AA12	1,150	13,700

Hull #6

12 Gauge 3 ½"

Hull I.D. Page 85

Reference Notes Page 105

Remington SP Plastic Shell (With Yellow Plastic Basewad)

12

12 Gauge 3 ½" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	CCI 209M	Blue Dot	38.0	Win AA12SL	1,200	10,000
1 7/8	CCI 209M	Blue Dot	38.0	Fed 12SO	1,200	10,100
1 7/8	CCI 209M	Blue Dot	38.0	Rem R12L	1,200	10,300
1 7/8	Win 209	Blue Dot	37.5	Rem R12L	1,200	10,500
1 7/8	Fed 209A	Longshot	36.1	Win AA12SL + 1-20 Ga .135" Cards Under Shot	1,250	13,000
1 7/8	Rem 209P	Longshot	36.4	Fed 12SO + 1-20 Ga .135" Cards Under Shot	1,250	13,000
1 7/8	Rem 209P	Longshot	36.0	Rem TGT12 + 1-20 Ga .135" Cards Under Shot	1,250	13,100
1 7/8	Fed 209A	Longshot	36.0	Rem TGT12 + 1-20 Ga .135" Cards Under Shot	1,250	13,200
1 7/8	Rem 209P	Longshot	36.5	Win AA12SL + 1-20 Ga .135" Cards Under Shot	1,250	13,200
1 7/8	Fed 209A	Longshot	36.0	Fed 12SO + 1-20 Ga .135" Cards Under Shot	1,250	13,600
1 7/8	CCI 209M	Blue Dot	39.0	Win AA12SL	1,255	10,400
1 7/8	CCI 209M	Blue Dot	39.0	Fed 12SO	1,255	10,600
1 7/8	CCI 209M	Blue Dot	39.0	Rem R12L	1,255	10,900
1 7/8	Win 209	Blue Dot	38.5	Rem R12L	1,255	11,000
2	Fed 209A	Longshot	33.8	Rem TGT12	1,200	13,000
2	Rem 209P	Longshot	34.0	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,200	13,300
2	Rem 209P	Longshot	34.0	Rem TGT12	1,200	13,300
2	CCI 209M	Blue Dot	39.0	Win AA12SL	1,220	10,700
2	CCI 209M	Blue Dot	39.5	Fed 12SO	1,220	10,800
2	CCI 209M	Blue Dot	39.5	Rem R12L	1,220	11,100
2	Win 209	Blue Dot	39.0	Rem R12L	1,220	11,200
2 1/4	CCI 209M	Blue Dot	37.0	Fed 12S4	1,150	11,100
2 1/4	CCI 209M	Blue Dot	38.0	Rem SP12	1,150	11,100
2 1/4	Win 209	Blue Dot	38.0	Rem SP12	1,150	11,500
2 1/4	Rem 209P	Longshot	30.0	Win AA12	1,150	13,000
2 1/4	Fed 209A	Longshot	29.4	Fed 12S3	1,150	13,100
2 1/4	Fed 209A	Longshot	29.3	Rem RXP	1,150	13,300
2 1/4	Fed 209A	Longshot	29.5	Win AA12	1,150	13,600
2 1/4	Rem 209P	Longshot	31.0	Rem RXP	1,150	13,700
2 1/4	Rem 209P	Longshot	30.9	Win AA12	1,175	13,500
2 1/4	Fed 209A	Longshot	29.9	Fed 12S3	1,175	13,600
2 1/4	Fed 209A	Longshot	30.0	Rem RXP	1,175	13,900

Hull #7

12 Gauge 3 ½"

Hull I.D. Page 86

Reference Notes Page 105

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

12

12 Gauge 3 ½" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Win 209	Blue Dot	38.5	Win AA12SL	1,200	10,000
1 7/8	CCI 209M	Blue Dot	38.0	Win AA12SL	1,200	10,100
1 7/8	Win 209	Blue Dot	38.5	Rem R12L	1,200	10,300
1 7/8	Win 209	Blue Dot	38.5	Fed 12SO	1,200	10,600
1 7/8	Win 209	Longshot	38.6	Win AA12SL + 1-20 Ga .135" Cards Under Shot	1,250	11,100
1 7/8	Win 209	Longshot	37.9	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,250	11,200

12 Gauge 3 ½" Lead Shot Load Data

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

(Continued) **Hull #7**

12 Gauge 3 ½"

Hull I.D. Page 86
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Win 209	Longshot	37.2	Win AA12 + 1-20 Ga .135" Cards Under Shot	1,250	11,900
1 7/8	Fed 209A	Longshot	37.0	Win AA12SL + 1-20 Ga .135" Cards Under Shot	1,250	12,800
1 7/8	Fed 209A	Longshot	35.9	Win AA12 + 1-20 Ga .135" Cards Under Shot	1,250	13,000
1 7/8	Fed 209A	Longshot	35.5	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,250	13,400
1 7/8	CCI 209M	Blue Dot	39.5	Win AA12SL	1,255	10,500
1 7/8	Win 209	Blue Dot	40.0	Rem R12L	1,255	10,700
1 7/8	Win 209	Blue Dot	40.5	Fed 12SO	1,255	10,700
1 7/8	Win 209	Blue Dot	40.0	Win AA12SL	1,255	10,800
1 7/8	Win 209	Longshot	39.5	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,300	12,400
1 7/8	Win 209	Longshot	39.8	Win AA12 + 1-20 Ga .135" Cards Under Shot	1,300	13,100
2	Win 209	Longshot	38.0	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,200	11,300
2	Win 209	Longshot	36.0	Win AA12 + 1-20 Ga .135" Cards Under Shot	1,200	12,800
2	Fed 209A	Longshot	35.0	Win AA12 + 1-20 Ga .135" Cards Under Shot	1,200	13,200
2	Fed 209A	Longshot	34.2	Fed 12S3 + 1-20 Ga .135" Cards Under Shot	1,200	13,400
2	Win 209	Blue Dot	39.0	Rem R12L	1,220	10,600
2	Win 209	Blue Dot	40.5	Fed 12SO	1,220	11,000
2	CCI 209M	Blue Dot	39.0	Win AA12SL	1,220	11,200
2	Win 209	Blue Dot	40.0	Win AA12SL	1,220	11,200
2 1/4	Win 209	Blue Dot	37.0	Rem SP12	1,150	11,200
2 1/4	Rem 209P	Longshot	31.5	Rem R12H + 1-20 Ga .135" Cards Under Shot	1,150	12,400
2 1/4	Win 209	Longshot	32.0	Win AA12F114 + 1-20 Ga .135" Cards Under Shot	1,150	12,600
2 1/4	Win 209	Longshot	32.0	Rem R12H + 1-20 Ga .135" Cards Under Shot	1,150	13,200
2 1/4	Win 209	Longshot	31.5	Fed 12S4	1,150	13,300
2 1/4	Rem 209P	Longshot	31.0	Fed 12S4 + 1-20 Ga .135" Cards Under Shot	1,150	13,500
2 1/4	Rem 209P	Longshot	32.0	Win AA12F114 + 1-20 Ga .135" Cards Under Shot	1,150	14,00

12 Gauge 3" Lead Shot Load Data

Federal Hi-Power Plastic Shell (With 7/16" Paper Basewad)

Hull #8

12 Gauge 3"

Hull I.D. Page 86
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Blue Dot	38.0	Win AA12	1,295	8,800
1 3/8	Fed 209A	Blue Dot	38.0	Rem RXP12	1,295	9,000
1 3/8	Fed 209A	Herco	30.5	Rem RXP12	1,295	9,300
1 3/8	Fed 209A	Herco	30.5	Win WAA12	1,295	9,700
1 3/8	Fed 209A	Herco	30.5	Fed 12S3	1,295	10,000
1 3/8	Fed 209A	Blue Dot	40.0	Rem SP12	1,350	8,900
1 3/8	Fed 209A	Blue Dot	40.0	Fed 12S4	1,350	9,400
1 1/2	Fed 209A	800-X	27.5	Fed 12S4	1,230	10,800
1 1/2	Fed 209A	SR4756	33.0	Win AA12R	1,255	10,700
1 1/2	Win 209	800-X	29.0	Fed 12S4	1,260	10,600
1 1/2	Fed 209A	800-X	29.0	Rem R12H	1,270	10,700
1 1/2	Fed 209A	SR4756	33.5	Rem RP12	1,285	10,800
1 1/2	Win 209	800-X	30.0	Rem R12H	1,290	10,500

Hull #8 (continued)

12 Gauge 3"

Hull I.D. Page 86

Reference Notes Page 105

Federal Hi-Power Plastic Shell (With 7/16" Paper Basewad)

12

12 Gauge 3" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/2	Rem 209P	800-X	31.0	Fed 12S4	1,290	10,600
1 1/2	Rem 209P	SR4756	37.0	Rem RP12	1,295	9,100
1 1/2	Rem 209P	SR4756	37.0	Win AA12R	1,305	9,600
1 1/2	Win 209	SR4756	37.0	Rem RP12	1,305	9,900
1 1/2	Fed 209A	Blue Dot	38.5	Rem RXP12	1,315	9,600
1 1/2	Fed 209A	Blue Dot	38.0	Fed 12S3	1,315	9,700
1 1/2	Fed 209A	Blue Dot	37.5	Win WAA12	1,315	9,800
1 1/2	Win 209	SR4756	37.0	Win AA12R	1,315	10,400
1 1/2	Rem 209P	800-X	33.0	Rem R12H	1,335	10,600
1 5/8	Win 209	Longshot	27.9	Rem SP12	1,155	9,900
1 5/8	Win 209	Longshot	28.0	Win AA12R + .070" Cards Under Shot	1,155	10,500
1 5/8	CCI 209M	Longshot	27.7	Rem SP12	1,155	10,600
1 5/8	Fed 209A	Longshot	27.1	Rem SP12	1,155	11,200
1 5/8	Fed 209A	800-X	26.0	Win AA12R	1,175	10,800
1 5/8	Fed 209A	800-X	26.0	Rem SP12	1,175	10,800
1 5/8	Fed 209A	SR4756	31.0	Win AA12R	1,185	10,800
1 5/8	Fed 209A	SR4756	31.0	Rem RP12	1,185	11,000
1 5/8	Rem 209P	800-X	28.0	Rem SP12	1,200	10,800
1 5/8	Rem 209P	800-X	27.5	Win AA12R	1,200	10,900
1 5/8	Win 209	Longshot	29.5	Rem SP12	1,210	11,400
1 5/8	Win 209	Longshot	30.9	Win AA12	1,225	9,500
1 5/8	Fed 209A	Longshot	29.1	Win AA12	1,225	10,000
1 5/8	CCI 209M	Longshot	28.8	Win AA12	1,225	10,200
1 5/8	Win 209	Longshot	30.0	Fed 12S4	1,225	10,300
1 5/8	CCI 209M	Longshot	28.3	Fed 12S4	1,225	10,600
1 5/8	Fed 209A	Longshot	28.3	Fed 12S4	1,225	10,800
1 5/8	Win 209	800-X	29.0	Rem SP12	1,230	10,900
1 5/8	Win 209	800-X	28.5	Win AA12R	1,230	11,000
1 5/8	Rem 209P	SR4756	34.5	Rem RP12	1,235	10,800
1 5/8	Rem 209P	SR4756	35.5	Win AA12R	1,250	10,900
1 5/8	Win 209	SR4756	35.5	Win AA12R	1,260	10,800
1 5/8	Win 209	SR4756	36.0	Rem RP12	1,260	10,800
1 5/8	Fed 209A	Blue Dot	39.0	Rem SP12	1,280	10,400
1 5/8	Win 209	Longshot	32.0	Win AA12	1,280	10,600
1 5/8	CCI 209M	Longshot	30.8	Win AA12	1,280	11,200
1 3/4	Fed 209A	800-X	25.0	Rem RP12	1,115	10,800
1 3/4	Fed 209A	800-X	25.5	Win AA12R	1,130	10,700
1 3/4	Win 209	800-X	27.5	Rem RP12	1,155	10,600
1 3/4	Win 209	800-X	27.5	Win AA12R	1,165	10,800
1 3/4	Rem 209P	800-X	28.0	Rem RP12	1,170	10,500
1 3/4	Rem 209P	800-X	28.0	Win AA12R	1,175	10,600
1 3/4	Fed 209A	Blue Dot	39.0	Rem RP12	1,245	10,500
1 7/8	Fed 209A	Blue Dot	36.0	Rem SP12	1,155	10,300
1 7/8	Fed 209A	Blue Dot	34.0	Rem RP12	1,155	10,500

12 Gauge 3" Lead Shot Load Data

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

Hull #9
12 Gauge 3"
Hull I.D. Page 86
Reference Notes Page 106

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Blue Dot	40.5	Fed 12S3	1,295	7,900
1 3/8	Fed 209A	Blue Dot	38.0	Win WAA12	1,295	9,800
1 3/8	Fed 209A	Herco	32.0	Rem RXP12	1,295	10,100
1 3/8	Fed 209A	Herco	31.0	Fed 12S3	1,295	10,500
1 3/8	Fed 209A	Blue Dot	42.0	Rem RXP12	1,350	8,000
1 3/8	Fed 209A	Blue Dot	44.0	Win AA12	1,350	9,900
1 1/2	Fed 209A	Blue Dot	40.0	Rem SP12	1,315	9,000
1 1/2	Fed 209A	Blue Dot	40.0	Fed 12S4	1,315	9,700
1 5/8	Fed 209A	Blue Dot	40.0	Rem SP12	1,280	9,400
1 5/8	Fed 209A	Blue Dot	40.0	Fed 12S4	1,280	10,100
1 3/4	Fed 209A	Blue Dot	39.0	Rem RP12	1,245	10,500
1 7/8	Fed 209A	Blue Dot	36.5	Rem SP12	1,155	9,900

12 Gauge 3" Lead Shot Load Data

Fiocchi Plastic Shell (With Plastic Basewad)

Hull #10
12 Gauge 3"
Hull I.D. Page 87
Reference Notes Page 106

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fio 616	Herco	32.5	Rem RXP12	1,295	8,600
1 3/8	Win 209	Blue Dot	37.5	Fed 12S3	1,295	8,800
1 3/8	Fio 616	Herco	31.5	Win AA12	1,295	8,900
1 3/8	CCI 209M	Blue Dot	37.0	Fed 12S3	1,295	9,000
1 3/8	Fio 616	Herco	31.5	Fed 12S3	1,295	9,100
1 3/8	Fio 616	Herco	31.0	Fio FTW1	1,295	9,200
1 3/8	CCI 209M	Herco	30.0	Fed 12S3	1,295	10,000
1 3/8	Win 209	Herco	29.5	Fed 12S3	1,295	10,600
1 3/8	Win 209	Blue Dot	38.5	Fed 12S4	1,350	10,100
1 3/8	Fio 616	Herco	32.5	Rem SP12	1,350	10,100
1 3/8	CCI 209M	Blue Dot	38.0	Fed 12S4	1,350	10,400
1 3/8	Fio 616	Herco	32.0	Fed 12S4	1,350	10,700
1 1/2	Fio 616	Blue Dot	39.0	Rem SP12	1,315	9,700
1 1/2	Fio 616	Blue Dot	39.0	Fed 12S4	1,315	10,300
1 1/2	CCI 209M	Blue Dot	38.0	Fed 12S4	1,315	10,400
1 1/2	Win 209	Blue Dot	39.0	Fed 12S4	1,315	10,600
1 5/8	Fio 616	Blue Dot	39.5	Rem SP12	1,280	9,700
1 5/8	Fio 616	Blue Dot	39.0	Fed 12S4	1,280	10,700
1 7/8	Fio 616	Blue Dot	34.5	Rem RP12	1,155	10,700
1 7/8	Ched 209	Longshot	27.2	Rem SP12	1,155	10,800
1 7/8	Ched 209	Longshot	27.0	Win AA12R	1,155	10,800
1 7/8	Fio 616	Longshot	27.5	Rem SP12	1,155	10,800
1 7/8	Fio 616	Longshot	26.9	Win AA12R	1,155	10,900

Hull #13

12 Gauge 3"

Hull I.D. Page 88

Reference Notes Page 107

Remington SPLV Plastic Shell (With Plastic Basewad)

12

12 Gauge 3"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	CCI 209M	Herco	30.0	Rem RXP12	1,295	9,200
1 3/8	CCI 209M	Herco	29.5	Fed 12S3	1,295	10,000
1 3/8	CCI 209M	Herco	30.0	Win WAA12	1,295	10,000
1 3/8	CCI 209M	Blue Dot	42.5	Rem RXP12	1,350	8,000
1 3/8	CCI 209M	Blue Dot	42.0	Fed 12S3	1,350	8,400
1 3/8	CCI 209M	Blue Dot	42.0	Win WAA12	1,350	8,500
1 1/2	CCI 209M	Blue Dot	34.0	Rem RP12	1,155	10,300
1 1/2	CCI 209M	Blue Dot	38.5	Rem RP12	1,245	10,700
1 1/2	Win 209	SR7625	33.5	Rem SP12	1,280	10,700
1 1/2	Win 209	SR7625	34.0	Rem RXP12	1,285	10,600
1 1/2	Win 209	800-X	29.5	Win AA12	1,285	10,800
1 1/2	Win 209	800-X	30.5	Rem SP12	1,300	10,600
1 1/2	CCI 209M	Blue Dot	40.0	Rem SP12	1,315	9,400
1 1/2	CCI 209M	Blue Dot	39.5	Fed 12S4	1,315	9,800
1 1/2	Win 209	SR4756	38.5	Rem SP12	1,345	10,500
1 5/8	Fed 209A	800-X	25.5	Win AA12	1,160	10,900
1 5/8	Fed 209A	800-X	25.5	Rem R12H	1,160	10,900
1 5/8	Fed 209A	SR4756	30.5	Rem RP12	1,175	10,900
1 5/8	Fed 209A	SR4756	30.0	Win AA12R	1,180	11,000
1 5/8	Rem 209P	800-X	27.5	Win AA12	1,205	10,800
1 5/8	Win 209	800-X	28.0	Win AA12	1,210	10,800
1 5/8	Win 209	800-X	28.0	Rem SP12	1,210	10,800
1 5/8	Rem 209P	800-X	28.0	Rem SP12	1,210	10,900
1 5/8	Rem 209P	Longshot	29.7	Rem SP12	1,225	9,000
1 5/8	Win 209	Longshot	29.9	Rem SP12	1,225	9,300
1 5/8	Win 209	Longshot	29.8	Win AA12F114	1,225	9,600
1 5/8	CCI 209M	Longshot	28.9	Rem SP12	1,225	9,700
1 5/8	Rem 209P	Longshot	29.0	Win AA12F114	1,225	10,300
1 5/8	CCI 209M	Longshot	28.0	Win AA12F114	1,225	10,400
1 5/8	Win 209	SR4756	33.5	Rem RP12	1,230	10,800
1 5/8	Rem 209P	SR4756	34.0	Rem RP12	1,235	10,900
1 5/8	Rem 209P	SR4756	34.0	Win AA12R	1,240	10,900
1 5/8	Win 209	SR4756	35.0	Win AA12R	1,250	11,000
1 5/8	Rem 209P	Longshot	31.3	Rem SP12	1,280	10,200
1 5/8	Win 209	Longshot	32.2	Rem SP12	1,280	10,300
1 5/8	CCI 209M	Longshot	31.0	Rem SP12	1,280	10,600
1 5/8	Win 209	Longshot	31.2	Win AA12F114	1,280	11,300
1 5/8	Win 209	Longshot	34.4	Rem SP12	1,335	11,200
1 7/8	Rem 209P	HS-7	36.0	Rem RP12	1,140	10,700
1 7/8	Rem 209P	HS-7	36.0	Win AA12R	1,140	10,800
1 7/8	Win 209	Longshot	29.1	Rem SP12	1,155	8,600
1 7/8	CCI 209M	Longshot	27.6	Rem SP12	1,155	10,900
1 7/8	Rem 209P	Longshot	28.4	Rem SP12	1,155	11,000
1 7/8	Win 209	Longshot	30.8	Rem SP12	1,210	11,000

12 Gauge 3" Lead Shot Load Data

Winchester Compression Formed AA and Super-X Type Shell

Hull #14

12 Gauge 3"

Hull I.D. Page 88
Reference Notes Page 107

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Win 209	HS-6	35.5	Win AA12	1,295	9,400
1 5/8	Win 209	HS-7	36.0	Rem R12H	1,205	10,200
1 5/8	Win 209	HS-7	36.0	Win AA12	1,205	10,400
1 7/8	Win 209	HS-7	33.5	Win AA12R	1,100	10,600

12 Gauge 3" Lead Shot Load Data

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

Hull #15

12 Gauge 3"

Hull I.D. Page 88
Reference Notes Page 107

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 5/8	Fed 209A	SR4756	31.0	Win AA12F114	1,180	10,800
1 5/8	Fed 209A	800-X	28.0	Win AA12	1,210	10,800
1 5/8	Fed 209A	800-X	28.5	Rem RXP12	1,220	11,000
1 5/8	Win 209	Longshot	33.6	Rem R12L	1,225	7,200
1 5/8	Rem 209P	Longshot	32.2	Rem R12L	1,225	8,500
1 5/8	CCI 209M	Longshot	31.6	Rem R12L	1,225	9,800
1 5/8	Fed 209A	SR4756	33.0	Rem SP12	1,225	10,900
1 5/8	Rem 209P	800-X	30.0	Win AA12	1,250	10,900
1 5/8	Win 209	800-X	30.5	Rem RXP12	1,255	11,000
1 5/8	Win 209	800-X	30.5	Win AA12	1,260	11,000
1 5/8	Rem 209P	SR4756	35.5	Rem RP12	1,265	10,900
1 5/8	Rem 209P	800-X	31.5	Rem RXP12	1,265	11,000
1 5/8	Win 209	Longshot	34.8	Rem R12L	1,280	8,700
1 5/8	Rem 209P	Longshot	33.9	Rem R12L	1,280	9,200
1 5/8	CCI 209M	Longshot	32.9	Rem R12L	1,280	10,200
1 5/8	Rem 209P	Longshot	31.4	Win AA12F114	1,280	10,400
1 5/8	Win 209	Longshot	32.7	Win AA12F114	1,280	10,400
1 5/8	CCI 209M	Longshot	31.6	Win AA12F114	1,280	10,700
1 5/8	Rem 209P	SR4756	37.5	Win AA12R	1,290	11,000
1 5/8	Win 209	SR4756	37.5	Rem RP12	1,290	11,000
1 5/8	Win 209	SR4756	38.5	Win AA12R	1,295	10,900
1 5/8	Rem 209P	Longshot	35.7	Rem R12L	1,335	10,000
1 5/8	Win 209	Longshot	36.1	Rem R12L	1,335	10,300
1 5/8	CCI 209M	Longshot	34.5	Rem R12L	1,335	11,400
1 5/8	Win 209	Longshot	34.0	Win AA12F114	1,335	11,500
1 7/8	Rem 209P	Longshot	29.9	Rem SP12	1,155	8,300
1 7/8	Win 209	Longshot	29.5	Win AA12R + .070" Card	1,155	8,800
1 7/8	Rem 209P	Longshot	29.3	Win AA12R + .070" Card	1,155	9,500
1 7/8	Win 209	Longshot	30.2	Rem SP12	1,155	9,500
1 7/8	CCI 209M	Longshot	28.5	Rem SP12	1,155	9,900
1 7/8	CCI 209M	Longshot	28.5	Win AA12R + .070" Card	1,155	10,400
1 7/8	Win 209	Longshot	32.0	Rem SP12	1,210	10,700
1 7/8	Win 209	Longshot	31.3	Win AA12R + .070" Card	1,210	11,000
1 7/8	Rem 209P	Longshot	31.0	Rem SP12	1,210	11,100
1 7/8	CCI 209M	Longshot	31.0	Rem SP12	1,210	11,500
1 7/8	Rem 209P	Longshot	30.9	Win AA12R + .070" Card	1,210	11,500

Hull #16

12 Gauge 2 ¾"

Hull I.D. Page 89

Reference Notes Page 108

Cheddite Plastic Hull (With Plastic Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Ched 209	American Select	20.0	Fed 12SO	1,200	6,150
1	Ched 209	Green Dot	21.5	Fed 12SO	1,200	6,900
1	Ched 209	Red Dot	19.0	Fed 12SO	1,200	7,800
1	Ched 209	American Select	21.5	Fed 12SO	1,255	7,000
1	Ched 209	Green Dot	23.0	Fed 12SO	1,255	7,800
1	Ched 209	Red Dot	20.0	Fed 12SO	1,255	8,700
1	Ched 209	Green Dot	24.0	Fed 12SO	1,290	8,250
1	Ched 209	Red Dot	21.0	Fed 12SO	1,290	9,250
1	Ched 209	American Select	22.5	Fed 12SO	1,300	7,600
1 1/8	Ched 209	International	19.5	Fed 12S3	1,090	7,200
1 1/8	Ched 209	Titewad	16.5	Win AA12SL	1,090	7,300
1 1/8	Ched 209	International	19.0	Win AA12	1,090	7,300
1 1/8	Ched 209	Titewad	16.5	Fed 12S3	1,090	7,400
1 1/8	Fio 616	Clays	16.0	Fio TL1	1,090	7,500
1 1/8	Ched 209	Clays	16.3	Fed 12S3	1,090	7,700
1 1/8	Ched 209	Clays	16.3	Win AA12	1,090	7,700
1 1/8	Ched 209	Titewad	16.0	Fio TL1	1,090	9,100
1 1/8	Ched 209	Green Dot	20.5	Rem RXP12	1,145	7,100
1 1/8	Ched 209	American Select	19.5	Rem RXP12	1,145	7,200
1 1/8	Fio 616	International	19.0	Fio TL1	1,145	7,200
1 1/8	Ched 209	Green Dot	20.0	Fed 12S3	1,145	7,500
1 1/8	Ched 209	American Select	19.0	Fed 12S3	1,145	7,600
1 1/8	Ched 209	International	19.5	Win AA12	1,145	7,800
1 1/8	Fio 616	Clays	17.0	Fio TL1	1,145	8,000
1 1/8	Ched 209	International	20.0	Fed 12S3	1,145	8,400
1 1/8	Ched 209	Red Dot	18.0	Rem RXP12	1,145	8,450
1 1/8	Ched 209	Titewad	17.0	Win AA12SL	1,145	8,500
1 1/8	Ched 209	Clays	17.5	Fed 12S3	1,145	8,500
1 1/8	Ched 209	Clays	17.3	Win AA12	1,145	8,500
1 1/8	Ched 209	Titewad	16.5	Rem Fig 8	1,145	8,800
1 1/8	Ched 209	Red Dot	18.0	Fed 12S3	1,145	9,000
1 1/8	Ched 209	Titewad	17.0	Fed 12S3	1,145	9,000
1 1/8	Ched 209	Titewad	17.0	Fio TL1	1,145	10,400
1 1/8	Ched 209	American Select	20.5	Rem RXP12	1,200	7,600
1 1/8	Ched 209	Green Dot	22.0	Rem RXP12	1,200	7,800
1 1/8	Ched 209	Green Dot	21.5	Fed 12S3	1,200	8,300
1 1/8	Ched 209	International	20.5	Win AA12	1,200	8,400
1 1/8	Ched 209	Red Dot	19.5	Rem RXP12	1,200	8,750
1 1/8	Ched 209	American Select	20.5	Fed 12S3	1,200	8,800
1 1/8	Fio 616	International	20.5	Fio TL1	1,200	8,800
1 1/8	Ched 209	Red Dot	19.5	Fed 12S3	1,200	9,600
1 1/8	Ched 209	Clays	18.7	Fed 12S3	1,200	9,700
1 1/8	Ched 209	Titewad	18.0	Win AA12SL	1,200	9,800
1 1/8	Ched 209	Clays	18.5	Win AA12	1,200	10,000
1 1/8	Ched 209	Titewad	18.0	Fed 12S3	1,200	10,100
1 1/8	Ched 209	Titewad	18.0	Rem Fig 8	1,200	10,400
1 1/8	Fio 616	Clays	19.0	Fio TL1	1,200	11,300
1 1/8	Ched 209	Titewad	18.0	Fio TL1	1,200	11,400

Cheddite Plastic Hull (With Plastic Basewad)

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Ched 209	International	21.5	Win AA12	1,235	9,900
1 1/8	Fio 616	International	22.0	Fio TL1	1,235	10,000
1 1/8	Ched 209	Clays	20.5	Win AA12	1,235	11,500
1 1/8	Ched 209	Longshot	33.6	Fed 12S3	1,420	7,100
1 1/8	Ched 209	Longshot	34.7	Windjammer	1,420	7,400
1 1/8	Ched 209	Longshot	32.9	Rem R12L	1,420	7,600
1 1/8	Ched 209	Longshot	33.7	Fio TL1	1,420	7,900
1 1/8	Ched 209	Longshot	36.1	Windjammer	1,475	8,000
1 1/8	Ched 209	Longshot	35.2	Fed 12S3	1,475	8,200
1 1/8	Ched 209	Longshot	34.6	Rem R12L	1,475	8,400
1 1/8	Ched 209	Longshot	35.2	Fio TL1	1,475	9,300
1 1/8	Ched 209	Longshot	37.5	Windjammer	1,530	8,700
1 1/8	Ched 209	Longshot	36.8	Fed 12S3	1,530	9,200
1 1/8	Ched 209	Longshot	36.4	Rem R12L	1,530	9,300
1 1/8	Ched 209	Longshot	36.6	Fio TL1	1,530	9,800
1 1/8	Ched 209	Longshot	38.9	Windjammer	1,585	9,400
1 1/8	Ched 209	Longshot	38.1	Rem R12L	1,585	10,100
1 1/8	Ched 209	Longshot	38.0	Fio TL1	1,585	10,700
1 1/4	Ched 209	Longshot	30.3	Rem R12L	1,330	7,700
1 1/4	Ched 209	Longshot	29.8	Win AA12F114	1,330	8,000
1 1/4	Ched 209	Longshot	32.2	Rem R12L	1,385	8,600
1 1/4	Ched 209	Longshot	31.7	Win AA12F114	1,385	8,800
1 1/4	Ched 209	Longshot	34.0	Rem R12L	1,440	9,500
1 1/4	Ched 209	Longshot	33.6	Win AA12F114	1,440	9,700
1 3/8	Ched 209	Longshot	25.5	Win AA12F114	1,185	7,700
1 3/8	Ched 209	Longshot	25.6	Fed 12S4	1,185	7,800
1 3/8	Ched 209	Longshot	28.1	Rem R12H	1,240	8,400
1 3/8	Ched 209	Longshot	27.2	Win AA12F114	1,240	8,900
1 3/8	Ched 209	Longshot	27.2	Fed 12S4	1,240	9,200
1 3/8	Ched 209	Longshot	29.5	Rem R12H	1,295	9,500
1 3/8	Ched 209	Longshot	28.8	Win AA12F114	1,295	10,100
1 3/8	Ched 209	Longshot	28.7	Fed 12S4	1,295	10,400
1 3/8	Ched 209	Longshot	30.9	Rem R12H	1,350	10,500
1 3/8	Ched 209	Longshot	30.4	Win AA12F114	1,350	11,300
1 3/8	Ched 209	Longshot	30.5	Fed 12S4	1,350	11,500
1 1/2	Ched 209	Longshot	26.6	Win AA12R	1,205	9,100
1 1/2	Ched 209	Longshot	27.0	Fed 12S4	1,205	9,800
1 1/2	Ched 209	Longshot	28.6	Win AA12R	1,260	10,100
1 1/2	Ched 209	Longshot	30.6	Win AA12R	1,315	11,100

Hull #18

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Fed 209A	Red Dot	17.0	Purple PC	1,200	6,400
7/8	Fed 209A	Red Dot	17.5	Rem TGT12	1,200	7,100
7/8	Fed 209A	Red Dot	17.0	Win AA12SL	1,200	7,300
7/8	Fed 209A	Red Dot	17.5	Fed 12SO	1,200	7,600
7/8	Fed 209A	Titewad	19.5	Fed 12SO	1,250	6,400
7/8	CCI 209SC	Clays	19.0	Win AA12L	1,250	6,700
7/8	Win 209	Clays	19.0	Win AA12L	1,250	7,000
7/8	CCI 209SC	Titewad	18.1	Win AA12L	1,250	7,100
7/8	Fed 209A	Red Dot	18.5	Purple PC	1,250	7,300
7/8	Fed 209A	Clays	19.2	Win AA12L	1,250	7,400
7/8	Fed 209A	Red Dot	18.5	Rem TGT12	1,250	7,800
7/8	Fed 209A	Red Dot	19.0	Fed 12SO	1,250	7,900
7/8	Fed 209A	Red Dot	18.0	Win AA12SL	1,250	8,000
7/8	Fed 209A	American Select	21.5	CB1100-12	1,300	6,900
7/8	Fed 209A	American Select	21.5	Purple PC	1,300	6,900
7/8	Fed 209A	Green Dot	22.5	Purple PC	1,300	7,000
7/8	Fed 209A	Green Dot	22.0	Rem TGT12	1,300	7,200
7/8	Fed 209A	American Select	21.0	Fed 12SO	1,300	7,300
7/8	CCI 209SC	International	22.7	Win AA12L	1,300	7,300
7/8	Fed 209A	American Select	21.0	Rem TGT12	1,300	7,400
7/8	Fed 209A	Green Dot	22.0	Fed 12SO	1,300	7,500
7/8	Fed 209A	Titewad	20.5	Fed 12SO	1,300	7,500
7/8	Fed 209A	International	22.3	Win AA12L	1,300	7,500
7/8	Win 209	International	23.5	Win AA12L	1,300	7,500
7/8	Fed 209A	Green Dot	21.5	Win AA12SL	1,300	7,600
7/8	Fed 209A	Red Dot	19.5	Purple PC	1,300	7,900
7/8	CCI 209SC	Clays	20.5	Win AA12L	1,300	8,000
7/8	Fed 209A	Clays	20.0	Win AA12L	1,300	8,000
7/8	Win 209	Clays	20.3	Win AA12L	1,300	8,000
7/8	CCI 209SC	Titewad	19.0	Win AA12L	1,300	8,100
7/8	Fed 209A	Red Dot	19.0	Win WAA12SL	1,300	8,400
7/8	Fed 209A	Red Dot	19.5	Fed 12SO	1,300	8,400
7/8	Fed 209A	Red Dot	19.5	Rem TGT12	1,300	8,500
7/8	Win 209	International	24.3	Win AA12L	1,350	7,900
7/8	CCI 209SC	International	24.0	Win AA12L	1,350	8,200
7/8	Fed 209A	International	23.2	Win AA12L	1,350	8,300
7/8	CCI 209SC	Titewad	20.3	Win AA12L	1,350	8,700
7/8	Fed 209A	Titewad	21.6	Fed 12SO	1,350	8,800
7/8	Win 209	Clays	22.0	Win AA12L	1,350	8,800
7/8	CCI 209SC	Clays	21.7	Win AA12L	1,350	9,400
7/8	Fed 209A	Clays	21.5	Win AA12L	1,350	9,700
7/8	Win 209	International	25.5	Win AA12L	1,400	9,100
7/8	Fed 209A	International	24.5	Win AA12L	1,400	9,300
7/8	CCI 209SC	International	25.0	Win AA12L	1,400	9,400
7/8	Fed 209A	Titewad	22.7	Fed 12SO	1,400	9,800
7/8	CCI 209SC	Titewad	21.4	Win AA12L	1,400	9,900
7/8	Win 209	Clays	23.0	Win AA12L	1,400	10,500

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	CCI 209SC	Clays	22.5	Win AA12L	1,400	11,300
7/8	Fed 209A	Clays	22.5	Win AA12L	1,400	11,500
7/8	Fed 209A	International	25.7	Win AA12L	1,450	10,000
7/8	CCI 209SC	International	25.5	Win AA12L	1,450	10,200
7/8	Win 209	International	27.0	Win AA12L	1,450	10,600
1	Fed 209A	SR7625	22.5	CB2100-12	1,090	4,200
1	Rem 209P	PB	20.5	Rem TGT12	1,090	4,300
1	Fed 209A	SR7625	22.0	Fed 12S3	1,090	4,500
1	Win 209	PB	19.5	Win AA12SL	1,090	4,900
1	Rem 209P	700-X	15.5	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,090	5,800
1	Rem 209P	PB	21.0	CB1100-12	1,095	3,800
1	Win 209	SR7625	22.0	CB2100-12	1,095	4,300
1	Rem 209P	PB	20.0	Win AA12SL	1,095	4,700
1	Rem 209P	700-X	15.5	CB2100-12	1,095	5,300
1	Fed 209A	SR7625	22.0	Rem TGT12	1,100	4,200
1	Win 209	PB	20.5	CB1100-12	1,100	4,300
1	Fed 209A	PB	20.0	CB1100-12	1,100	4,600
1	Fed 209A	700-X	15.0	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,100	5,900
1	Win 209	700-X	15.5	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,100	5,900
1	Fed 209A	700-X	15.0	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,100	6,000
1	Win 209	SR7625	22.5	Rem TGT12	1,105	4,300
1	Fed 209A	SR7625	22.5	Win AA12SL	1,105	4,600
1	Win 209	SR7625	22.5	Win AA12SL	1,105	4,600
1	Fed 209A	PB	19.5	Rem TGT12	1,105	5,100
1	Win 209	PB	19.5	Fed 12S3	1,105	5,100
1	Rem 209P	PB	20.0	Fed 12S3	1,105	5,200
1	Fed 209A	PB	19.5	Fed 12S3	1,105	5,400
1	Win 209	700-X	15.5	Fed 12S0	1,105	5,900
1	Win 209	700-X	15.5	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,105	6,000
1	Win 209	SR7625	21.5	Fed 12S3	1,110	4,700
1	Win 209	PB	20.0	Rem TGT12	1,110	5,300
1	Rem 209P	700-X	16.0	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,110	5,700
1	Rem 209P	700-X	15.0	Fed 12S0	1,110	5,700
1	Win 209	700-X	15.5	CB2100-12	1,110	5,700
1	Fed 209A	700-X	15.0	CB2100-12	1,110	6,000
1	Fed 209A	PB	18.0	Win AA12SL	1,110	6,000
1	Fed 209A	700-X	15.0	Fed 12S0	1,110	6,100
1	Rem 209P	Clays	18.2	Rem TGT 12	1,125	5,900
1	Win 209	Clays	17.2	Win AA12SL	1,125	6,200
1	Fed 209A	Clays	16.8	Fed 12S0	1,125	6,700
1	Rem 209P	PB	22.0	CB1100-12	1,140	4,300
1	Fed 209A	SR7625	23.5	CB2100-12	1,140	4,700
1	Fed 209A	PB	20.5	Rem TGT12	1,140	5,500
1	Win 209	SR7625	23.5	CB2100-12	1,145	4,600
1	Win 209	SR7625	23.5	Rem TGT12	1,145	4,700
1	Win 209	PB	21.5	CB1100-12	1,145	4,800
1	Fed 209A	SR7625	23.0	Rem TGT12	1,145	4,800
1	Rem 209P	700-X	16.5	CB2100-12	1,145	5,800

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	PB	20.5	Fed 12S3	1,145	5,900
1	Rem 209P	700-X	16.0	Fed 12S0	1,145	6,300
1	Fed 209A	700-X	16.0	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,145	6,500
1	Win 209	700-X	16.5	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,145	6,600
1	Win 209	SR7625	23.5	Win AA12SL	1,150	4,900
1	Fed 209A	PB	21.5	CB1100-12	1,150	5,100
1	Win 209	SR7625	22.5	Fed 12S3	1,150	5,200
1	Win 209	PB	21.0	Win AA12SL	1,150	5,400
1	Rem 209P	PB	21.0	Fed 12S3	1,150	5,700
1	Rem 209P	700-X	16.5	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,150	6,600
1	Win 209	700-X	16.5	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,150	6,700
1	Fed 209A	700-X	16.0	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,150	6,900
1	Rem 209P	PB	21.5	Win AA12SL	1,155	5,300
1	Win 209	PB	21.0	Fed 12S3	1,155	5,800
1	Win 209	PB	21.0	Rem TGT12	1,155	5,900
1	Rem 209P	700-X	17.0	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,155	6,200
1	Fed 209A	PB	19.5	Win AA12SL	1,155	6,600
1	Fed 209A	700-X	16.0	CB2100-12	1,155	6,700
1	Fed 209A	700-X	16.0	Fed 12S0	1,155	6,700
1	Win 209	700-X	16.5	Fed 12S0	1,155	6,700
1	Rem 209P	PB	22.0	Rem TGT12	1,160	5,200
1	Fed 209A	SR7625	23.5	Win AA12SL	1,160	5,200
1	Fed 209A	SR7625	23.5	Fed 12S3	1,160	5,400
1	Win 209	700-X	16.5	CB2100-12	1,160	6,400
1	Rem 209P	Clays	19.2	Rem TGT-12	1,180	6,300
1	Win 209	Titewad	17.4	Win AA12L	1,180	6,900
1	Win 209	Clays	18.2	Win AA12SL	1,180	7,000
1	Fed 209A	Titewad	17.8	Fed 12S0	1,180	7,100
1	Win 209	Titewad	18.0	Fed 12S0	1,180	7,100
1	Fed 209A	Titewad	17.0	Rem TGT12	1,180	7,500
1	Fed 209A	Clays	17.9	Fed 12S0	1,180	7,700
1	CCI 209	Titewad	17.2	Win AA12L	1,180	7,900
1	Win 209	WST	20.5	Fed 12S0	1,180	7,400
1	Fed 209A	SR7625	24.0	Rem TGT12	1,190	5,500
1	Fed 209A	700-X	17.0	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,190	7,100
1	Win 209	SR7625	25.0	CB2100-12	1,195	4,900
1	Rem 209P	PB	22.5	Win AA12SL	1,195	5,800
1	Fed 209A	PB	22.0	Rem TGT12	1,195	6,200
1	Win 209	700-X	17.5	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,195	7,200
1	Fed 209A	700-X	17.0	Fed 12S0	1,195	7,300
1	Rem 209P	700-X	17.5	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,195	7,300
1	Fed 209A	700-X	17.0	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,195	7,600
1	Rem 209P	700-X	18.0	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,196	6,600
1	Rem 209P	PB	23.5	CB1100-12	1,200	5,000
1	Fed 209A	SR7625	25.0	CB2100-12	1,200	5,300
1	Rem 209P	700-X	18.0	CB2100-12	1,200	6,600
1	Fed 209A	Green Dot	20.0	Rem TGT 12	1,200	7,000
1	Win 209	700-X	17.5	CB2100-12	1,200	7,000

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	American Select	19.5	Fed 12SO	1,200	7,100
1	Fed 209A	American Select	19.5	Win AA12SL	1,200	7,200
1	Fed 209A	American Select	20.0	CB1100-12	1,200	7,300
1	Fed 209A	Green Dot	20.5	Purple PC	1,200	7,300
1	Fed 209A	700-X	17.0	CB2100-12	1,200	7,300
1	Win 209	700-X	17.5	Fed 12SO	1,200	7,300
1	Fed 209A	Red Dot	18.0	Purple PC	1,200	7,400
1	Fed 209A	American Select	19.5	Rem TGT12	1,200	7,500
1	Fed 209A	Green Dot	20.5	Fed 12SO	1,200	7,600
1	Win 209	700-X	17.5	Win AA12SL + One 20. Ga Card In Bottom of Shotcup	1,200	7,600
1	Fed 209A	Green Dot	20.0	Win AA12SL	1,200	7,800
1	Fed 209A	Red Dot	18.0	Rem TGT12	1,200	7,900
1	Fed 209A	Red Dot	18.0	Fed 12SO	1,200	8,300
1	Fed 209A	Red Dot	18.0	Win AA12SL	1,200	8,700
1	Fed 209A	e3	17.5	Fed 12SO	1,200	9,040
1	Win 209	PB	23.0	CB1100-12	1,205	5,400
1	Win 209	SR7625	25.0	Rem TGT12	1,205	5,400
1	Fed 209A	PB	23.0	CB1100-12	1,205	5,700
1	Rem 209P	PB	23.0	Rem TGT12	1,205	5,700
1	Win 209	PB	22.5	Win AA12SL	1,205	6,000
1	Win 209	PB	22.0	Rem TGT12	1,205	6,500
1	Fed 209A	PB	21.0	Win AA12SL	1,205	7,100
1	Win 209	SR7625	25.0	Win AA12SL	1,210	5,300
1	Fed 209A	SR7625	24.5	Win AA12SL	1,210	5,900
1	Win 209	SR7625	24.0	Fed 12S3	1,210	5,900
1	Fed 209A	SR7625	24.5	Fed 12S3	1,210	6,000
1	Win 209	PB	22.5	Fed 12S3	1,210	6,500
1	Rem 209P	PB	22.5	Fed 12S3	1,210	6,600
1	Fed 209A	PB	22.0	Fed 12S3	1,210	6,700
1	Rem 209P	700-X	18.0	Fed 12SO	1,210	7,300
1	Rem 209P	Clays	20.2	Rem TGT12	1,235	6,800
1	Rem 209P	International	20.8	Rem TGT12	1,235	7,200
1	Win 209	International	20.5	Win AA12SL	1,235	7,200
1	CCI 209	International	21.5	Win AA12SL	1,235	7,300
1	Fed 209A	International	20.0	Purple PC	1,235	7,400
1	Win 209	Clays	19.1	Win AA12SL	1,235	7,600
1	Fed 209A	International	19.7	Win AA12SL	1,235	7,700
1	CCI 209SC	Clays	19.0	Purple PC	1,235	8,000
1	CCI 209SC	Titewad	18.7	Purple PC	1,235	8,100
1	Win 209	Titewad	18.8	Win AA12L	1,235	8,300
1	Fed 209A	International	19.9	Fed 12SO	1,235	8,300
1	Fed 209A	Titewad	19.3	Fed 12SO	1,235	8,500
1	Win 209	Titewad	19.1	Fed 12SO	1,235	8,600
1	Fed 209A	Titewad	18.4	Rem TGT12	1,235	8,700
1	CCI 209	Titewad	18.5	Win AA12L	1,235	9,200
1	Fed 209A	Clays	19.3	Fed 12SO	1,235	9,200
1	Win 209	WST	22.0	Fed 12SO	1,235	8,500
1	CCI 209	WST	21.0	Fed 12SO	1,235	8,500

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	SR7625	26.5	CB2100-12	1,245	5,200
1	Win 209	SR7625	26.0	Rem TGT12	1,245	5,900
1	Win 209	700-X	18.5	Rem TGT12 + One 20. Ga Card In Bottom of Shotcup	1,245	7,800
1	Win 209	700-X	18.5	Fed 12S0	1,245	7,800
1	Fed 209A	700-X	18.0	CB2100-12	1,245	7,900
1	Win 209	SR7625	26.0	Win AA12SL	1,250	5,600
1	Fed 209A	SR7625	26.0	CB2100-12	1,250	5,800
1	Fed 209A	SR7625	25.5	Rem TGT12	1,250	6,200
1	Rem 209P	PB	24.0	Rem TGT12	1,250	6,300
1	Win 209	PB	23.5	Fed 12S3	1,250	6,900
1	Rem 209P	PB	23.5	Fed 12S3	1,250	7,200
1	Rem 209P	700-X	19.5	Fed 12S0	1,250	8,000
1	Fed 209A	700-X	18.5	Fed 12S0	1,250	8,200
1	Fed 209A	700-X	18.5	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,250	8,500
1	Win 209	700-X	18.5	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,250	8,500
1	Rem 209P	PB	25.0	CB1100-12	1,255	5,600
1	Fed 209A	PB	24.0	CB1100-12	1,255	6,300
1	Fed 209A	SR7625	25.5	Fed 12S3	1,255	6,600
1	Win 209	SR7625	25.5	Fed 12S3	1,255	6,600
1	Win 209	PB	23.5	Rem TGT12	1,255	7,000
1	Rem 209P	700-X	19.5	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,255	7,300
1	Rem 209P	700-X	19.5	CB2100-12	1,255	7,400
1	Fed 209A	American Select	21.0	CB1100-12	1,255	7,600
1	Fed 209A	PB	22.5	Win AA12SL	1,255	7,600
1	Fed 209A	American Select	21.0	Fed 12S0	1,255	7,700
1	Fed 209A	Green Dot	21.5	Rem TGT 12	1,255	7,900
1	Fed 209A	Green Dot	21.5	Purple PC	1,255	8,000
1	Fed 209A	American Select	20.5	Rem TGT12	1,255	8,100
1	Fed 209A	700-X	18.5	Rem TGT12 + One 20 Ga. Card In Bottom of Shotcup	1,255	8,100
1	Fed 209A	American Select	21.0	Win AA12SL	1,255	8,400
1	Fed 209A	Green Dot	21.5	Win AA12SL	1,255	8,500
1	Fed 209A	Green Dot	21.5	Fed 12S0	1,255	8,600
1	Fed 209A	Red Dot	19.0	Rem TGT12	1,255	8,700
1	Fed 209A	Red Dot	19.5	Purple PC	1,255	8,700
1	Fed 209A	Red Dot	18.5	Win AA12SL	1,255	9,100
1	Fed 209A	Red Dot	19.5	Fed 12S0	1,255	9,300
1	Fed 209A	e3	18.5	Fed 12S0	1,255	9,340
1	Win 209	PB	24.5	CB1100-12	1,260	6,100
1	Rem 209P	PB	24.0	Win AA12SL	1,260	6,600
1	Fed 209A	PB	24.0	Rem TGT12	1,260	6,800
1	Fed 209A	PB	23.0	Fed 12S3	1,260	7,100
1	Win 209	700-X	19.0	CB2100-12	1,260	8,100
1	Rem 209P	700-X	19.0	Win AA12SL + One 20 Ga. Card In Bottom of Shotcup	1,260	8,400
1	Fed 209A	SR7625	25.5	Win AA12SL	1,265	6,600
1	Win 209	PB	24.0	Win AA12SL	1,265	6,700
1	Rem 209P	Clays	21.2	Rem TGT12	1,290	7,300
1	Rem 209P	International	21.2	Rem TGT12	1,290	7,500
1	Fed 209A	American Select	21.5	CB1100-12	1,290	8,000

12

12 Gauge 2 ¾" Lead Shot Load Data

Federal One-Piece Plastic Shell Target and Gold Medal Type

(continued) **Hull #18**

12 Gauge 2 ¾"

Hull I.D. Page 90
Reference Notes Page 109

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209	International	22.3	Win AA12SL	1,290	8,000
1	Fed 209A	Green Dot	22.5	Purple PC	1,290	8,300
1	Win 209	Clays	20.0	Win AA12SL	1,290	8,300
1	Win 209	International	22.0	Win AA12SL	1,290	8,400
1	Fed 209A	American Select	22.0	Fed 12SO	1,290	8,500
1	Fed 209A	Green Dot	22.5	Rem TGT12	1,290	8,500
1	Fed 209A	International	21.4	Purple PC	1,290	8,600
1	Fed 209A	Green Dot	22.5	Fed 12SO	1,290	8,700
1	Fed 209A	American Select	21.5	Rem TGT12	1,290	8,800
1	Fed 209A	American Select	21.5	Win AA12SL	1,290	8,800
1	Fed 209A	Green Dot	22.5	Win AA12SL	1,290	9,000
1	Fed 209A	Red Dot	20.0	Rem TGT12	1,290	9,100
1	Fed 209A	International	21.0	Win AA12SL	1,290	9,100
1	CCI 209SC	Titewad	20.2	Purple PC	1,290	9,200
1	Fed 209A	Red Dot	20.5	Purple PC	1,290	9,300
1	CCI 209SC	Clays	20.0	Purple PC	1,290	9,300
1	Fed 209A	Titewad	20.8	Fed 12SO	1,290	9,600
1	Fed 209A	Titewad	19.7	Rem TGT12	1,290	9,800
1	Win 209	Titewad	20.3	Win AA12L	1,290	9,800
1	Fed 209A	International	21.3	Fed 12SO	1,290	9,900
1	Fed 209A	e3	19.5	Fed 12SO	1,290	10,070
1	Fed 209A	Red Dot	20.0	Win AA12SL	1,290	10,300
1	Fed 209A	Red Dot	20.5	Fed 12SO	1,290	10,300
1	Win 209	Titewad	20.3	Fed 12SO	1,290	10,300
1	CCI 209	Titewad	19.8	Win AA12L	1,290	10,400
1	Fed 209A	Clays	20.3	Fed 12SO	1,290	10,800
1	Win 209	WST	23.0	Fed 12SO	1,290	9,300
1	CCI 209	WST	22.5	Fed 12SO	1,290	9,500
1	Rem 209P	International	23.3	Rem TGT12	1,345	9,400
1	Win 209	International	23.4	Win AA12SL	1,345	9,400
1	Fed 209A	International	22.7	Purple PC	1,345	9,700
1	CCI 209SC	Titewad	21.7	Purple PC	1,345	10,500
1	Fed 209A	International	22.3	Win AA12SL	1,345	10,500
1	Fed 209A	Titewad	21.0	Rem TGT12	1,345	11,000
1	Win 209	Titewad	21.7	Win AA12L	1,345	11,200
1	Fed 209A	International	22.5	Fed 12SO	1,345	11,200
1	CCI 209	Titewad	21.1	Win AA12L	1,345	11,300
1	Fed 209A	Titewad	21.7	Fed 12SO	1,345	11,300
1	Win 209	Titewad	22.0	Fed 12SO	1,345	11,300
1	Win 209	International	24.7	Rem TGT12	1,400	10,200
1	Rem 209P	International	24.5	Rem TGT12	1,400	10,400
1	Win 209	International	24.7	Win AA12SL	1,400	10,400
1	Fed 209A	International	24.1	Purple PC	1,400	10,800
1 1/8	Fed 209A	American Select	15.0	Fed 12S3	1,000	6,300
1 1/8	Fed 209A	Red Dot	14.0	Fed 12S3	1,000	7,500
1 1/8	Fed 209A	SR7625	22.5	Rem Fig 8	1,090	5,300
1 1/8	Fed 209A	800-X	20.5	CB2118-12	1,090	5,500
1 1/8	Fed 209A	SR7625	22.0	Fed 12S3	1,090	5,600

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	800-X	20.5	Fed 12S3	1,090	5,700
1 1/8	Win 209	PB	20.5	Fed 12S3	1,090	6,100
1 1/8	CCI 209SC	International	19.0	Rem TGT12	1,090	6,200
1 1/8	Fed 209A	International	19.0	Windjammer	1,090	6,200
1 1/8	Win 209	Clays	17.3	Windjammer	1,090	6,300
1 1/8	Fed 209A	Green Dot	18.5	Windjammer	1,090	6,600
1 1/8	Win 209	International	19.1	Win AA12SL	1,090	6,600
1 1/8	Ched 209	International	18.3	Windjammer	1,090	6,700
1 1/8	CCI 209M	International	19.5	Rem TGT12	1,090	6,800
1 1/8	Ched 209	International	17.9	Rem Fig 8	1,090	6,800
1 1/8	Fio 616	International	19.2	Fio TL1	1,090	6,800
1 1/8	Rem 209P	700-X	16.0	Rem TGT12	1,090	6,900
1 1/8	Fed 209A	Green Dot	18.0	Rem Fig 8	1,090	7,000
1 1/8	Ched 209	Clays	16.9	Windjammer	1,090	7,000
1 1/8	Fed 209A	International	18.5	Fed 12S3	1,090	7,000
1 1/8	Fed 209A	American Select	17.5	CB3118-12	1,090	7,100
1 1/8	Fed 209A	American Select	17.5	Fed 12S3	1,090	7,100
1 1/8	Fed 209A	Green Dot	18.0	Hor Versalite	1,090	7,200
1 1/8	Rem 209P	Clays	16.6	Rem Fig 8	1,090	7,200
1 1/8	Ched 209	International	18.2	Fed 12S3	1,090	7,300
1 1/8	Fed 209A	American Select	17.5	Win AA12	1,090	7,400
1 1/8	Fed 209A	Clays	17.0	Rem Fig 8	1,090	7,400
1 1/8	Fed 209A	Clays	16.5	Windjammer	1,090	7,400
1 1/8	Rem 209P	Titewad	16.0	Rem Fig 8	1,090	7,500
1 1/8	Fed 209A	Green Dot	18.0	Win AA12SL	1,090	7,600
1 1/8	Fed 209A	Red Dot	17.5	Windjammer	1,090	7,600
1 1/8	Ched 209	Clays	16.5	Rem Fig 8	1,090	7,600
1 1/8	Fed 209A	American Select	18.0	Win WT12	1,090	7,700
1 1/8	Fed 209A	Green Dot	18.0	Win AA12	1,090	7,700
1 1/8	Fed 209A	Red Dot	17.0	Rem Fig 8	1,090	7,700
1 1/8	Fed 209A	Clays	16.5	Win AA12	1,090	7,700
1 1/8	Fed 209A	Green Dot	18.0	Fio FTW1	1,090	7,800
1 1/8	Fed 209A	Green Dot	18.5	Fed 12S3	1,090	7,800
1 1/8	Win 209	Titewad	16.5	Win AA12SL	1,090	7,900
1 1/8	Fed 209A	Clays	16.8	Fed 12S3	1,090	7,900
1 1/8	Fed 209A	American Select	17.5	Rem Fig 8	1,090	8,000
1 1/8	Fed 209A	Titewad	15.8	Rem Fig 8	1,090	8,000
1 1/8	Ched 209	Clays	16.8	Fed 12S3	1,090	8,000
1 1/8	Fed 209A	American Select	17.0	Hor Versalite	1,090	8,100
1 1/8	Fed 209A	Red Dot	17.0	Win AA12SL	1,090	8,100
1 1/8	Ched 209	Titewad	16.0	Windjammer	1,090	8,100
1 1/8	Fio 616	Red Dot	17.5	Fed 12S3	1,090	8,200
1 1/8	Fed 209A	Titewad	15.4	Win AA12	1,090	8,200
1 1/8	CCI 209M	Red Dot	17.0	Fed 12S3	1,090	8,300
1 1/8	Fed 209A	Titewad	16.3	Fed 12S3	1,090	8,300
1 1/8	Fed 209A	Red Dot	17.0	Fed 12S3	1,090	8,400
1 1/8	Win 209	Red Dot	17.0	Fed 12S3	1,090	8,400
1 1/8	Fed 209A	Red Dot	16.5	Fio FTW1	1,090	8,500

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Red Dot	16.5	Win AA12	1,090	8,500
1 1/8	Fed 209A	Red Dot	17.0	Hor Versalite	1,090	8,600
1 1/8	Ched 209	Titewad	15.4	Rem Fig 8	1,090	8,800
1 1/8	Win 209	Clays	16.6	G/BP Pisk	1,090	8,800
1 1/8	Ched 209	Titewad	15.4	Fed 12S3	1,090	9,100
1 1/8	Fio 616	Titewad	15.0	Fio TL1	1,090	9,500
1 1/8	CCI 209M	Titewad	14.9	G/BP CS12	1,090	9,800
1 1/8	Rem 209P	SR7625	24.0	Windjammer	1,095	4,300
1 1/8	Win 209	SR7625	23.0	Windjammer	1,095	4,900
1 1/8	Rem 209P	PB	21.0	Windjammer	1,095	5,000
1 1/8	CCI 209	800-X	21.5	CB2118-12	1,095	5,000
1 1/8	Rem 209P	SR7625	23.0	Fed 12S3	1,095	5,200
1 1/8	Win 209	SR7625	23.0	Rem Fig 8	1,095	5,200
1 1/8	Win 209	SR7625	22.5	CB2118-12	1,095	5,400
1 1/8	Win 209	800-X	20.5	CB2118-12	1,095	5,500
1 1/8	Rem 209P	PB	20.5	Win AA12SL	1,095	5,700
1 1/8	Fed 209A	SR7625	22.0	CB2118-12	1,095	5,700
1 1/8	Win 209	800-X	20.5	Fed 12S3	1,095	5,700
1 1/8	CCI 209	800-X	21.0	Fed 12S3	1,095	5,800
1 1/8	Fed 209A	PB	20.0	Rem Fig 8	1,095	6,000
1 1/8	Fed 209A	PB	19.5	Win AA12	1,095	6,100
1 1/8	Fed 209A	PB	19.5	Fed 12S3	1,095	6,600
1 1/8	Win 209	700-X	16.0	Rem TGT12	1,095	6,800
1 1/8	Rem 209P	700-X	16.0	CB2118-12	1,095	7,200
1 1/8	Rem 209P	700-X	16.0	Fed 12S3	1,095	7,500
1 1/8	CCI 209	800-X	22.5	Windjammer	1,100	4,200
1 1/8	Fed 209A	800-X	22.0	Windjammer	1,100	4,900
1 1/8	Rem 209P	SR7625	24.0	Rem Fig 8	1,100	5,000
1 1/8	Win 209	SR7625	23.0	Fed 12S3	1,100	5,400
1 1/8	Fed 209A	800-X	21.0	Rem Fig 8	1,100	5,400
1 1/8	Win 209	800-X	21.0	Rem Fig 8	1,100	5,400
1 1/8	Rem 209P	PB	21.0	Rem Fig 8	1,100	5,500
1 1/8	Rem 209P	SR7625	22.0	Win AA12	1,100	5,600
1 1/8	Win 209	SR7625	22.5	Win AA12	1,100	5,600
1 1/8	Win 209	PB	20.5	CB1118-12	1,100	5,800
1 1/8	Fed 209A	800-X	20.5	Win AA12	1,100	5,800
1 1/8	Win 209	800-X	20.5	Win AA12	1,100	5,800
1 1/8	Rem 209P	PB	20.5	Fed 12S3	1,100	6,000
1 1/8	Win 209	PB	21.0	Win AA12SL	1,100	6,000
1 1/8	Fed 209A	SR7625	21.5	Win AA12	1,100	6,100
1 1/8	Win 209	700-X	16.0	Win AA12SL	1,100	7,200
1 1/8	Win 209	700-X	16.0	CB2118-12	1,100	7,200
1 1/8	Fed 209A	700-X	16.0	Rem TGT12	1,100	7,400
1 1/8	Win 209	800-X	22.0	Windjammer	1,105	4,900
1 1/8	Fed 209A	SR7625	23.0	Windjammer	1,105	5,100
1 1/8	CCI 209	800-X	21.5	Win AA12	1,105	5,200
1 1/8	Rem 209P	SR7625	22.5	CB2118-12	1,105	5,300
1 1/8	Win 209	PB	21.0	Windjammer	1,105	5,500

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	CCI 209	800-X	21.0	Rem Fig 8	1,105	5,500
1 1/8	Rem 209P	PB	21.0	CB1118-12	1,105	5,800
1 1/8	Fed 209A	PB	20.5	Windjammer	1,105	5,900
1 1/8	Win 209	PB	21.0	Rem Fig 8	1,105	5,900
1 1/8	Fed 209A	PB	20.0	CB1118-12	1,105	6,000
1 1/8	Win 209	PB	20.5	Win AA12	1,105	6,200
1 1/8	Win 209	700-X	16.0	Fed 12S3	1,105	7,800
1 1/8	Fed 209A	700-X	16.0	Fed 12S3	1,105	7,900
1 1/8	Rem 209P	700-X	16.5	Win AA12SL	1,110	7,500
1 1/8	Fed 209A	700-X	16.0	Win AA12SL	1,110	7,900
1 1/8	Fed 209A	700-X	16.0	CB2118-12	1,110	7,900
1 1/8	Rem 209P	SR7625	25.5	Windjammer	1,140	4,700
1 1/8	Win 209	SR7625	24.5	Windjammer	1,140	5,400
1 1/8	Fed 209A	SR7625	24.0	Windjammer	1,140	5,600
1 1/8	Fed 209A	SR7625	24.0	Rem Fig 8	1,140	5,700
1 1/8	Win 209	800-X	22.0	Rem Fig 8	1,140	5,900
1 1/8	Win 209	PB	22.0	Rem Fig 8	1,140	6,300
1 1/8	Fed 209A	800-X	21.5	Win AA12	1,140	6,300
1 1/8	Win 209	800-X	21.5	Win AA12	1,140	6,300
1 1/8	Fed 209A	PB	21.0	CB1118-12	1,140	6,400
1 1/8	Rem 209P	PB	21.5	Win AA12SL	1,140	6,400
1 1/8	Win 209	PB	22.0	Win AA12SL	1,140	6,600
1 1/8	Win 209	PB	21.5	Win AA12	1,140	6,700
1 1/8	Fed 209A	PB	21.0	Fed 12S3	1,140	7,100
1 1/8	Win 209	700-X	17.0	Rem TGT12	1,140	7,500
1 1/8	Rem 209P	700-X	17.0	CB2118-12	1,140	7,900
1 1/8	CCI 209	800-X	23.5	Windjammer	1,145	4,800
1 1/8	Fed 209A	800-X	23.0	Windjammer	1,145	5,400
1 1/8	CCI 209	800-X	23.0	CB2118-12	1,145	5,500
1 1/8	CCI 209	800-X	22.5	Win AA12	1,145	5,600
1 1/8	Win 209	PB	22.0	Windjammer	1,145	6,000
1 1/8	Rem 209P	SR7625	23.5	Win AA12	1,145	6,000
1 1/8	Win 209	800-X	22.0	CB2118-12	1,145	6,000
1 1/8	Fed 209A	PB	21.5	Windjammer	1,145	6,400
1 1/8	Fed 209A	International	19.5	Windjammer	1,145	6,500
1 1/8	Fed 209A	PB	21.5	Rem Fig 8	1,145	6,600
1 1/8	Rem 209P	Green Dot	20.5	Fed 12S3	1,145	6,800
1 1/8	CCI 209SC	International	19.2	Rem TGT12	1,145	6,900
1 1/8	CCI 209M	International	20.0	Rem TGT12	1,145	7,000
1 1/8	Win 209	International	19.5	Windjammer	1,145	7,000
1 1/8	Win 209	International	20.1	Win AA12SL	1,145	7,100
1 1/8	Win 209	Clays	18.3	Windjammer	1,145	7,200
1 1/8	Fed 209A	International	19.0	Fed 12S3	1,145	7,200
1 1/8	Fio 616	International	19.7	Fio TL1	1,145	7,300
1 1/8	CCI 209M	Green Dot	19.5	Fed 12S3	1,145	7,500
1 1/8	Fed 209A	American Select	19.0	Fed 12S3	1,145	7,600
1 1/8	Fed 209A	Green Dot	19.0	Rem Fig 8	1,145	7,700
1 1/8	Fed 209A	Green Dot	19.5	Windjammer	1,145	7,700

12

12 Gauge 2 ¾" Lead Shot Load Data

Federal One-Piece Plastic Shell Target and Gold Medal Type

(continued) **Hull #18**

12 Gauge 2 ¾"

Hull I.D. Page 90
Reference Notes Page 109

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	American Select	19.5	Fed 12S3	1,145	7,800
1 1/8	CCI 209	Green Dot	19.0	Fed 12S3	1,145	7,800
1 1/8	Ched 209	International	19.5	Windjammer	1,145	7,800
1 1/8	Win 209	700-X	17.0	Win AA12SL	1,145	7,900
1 1/8	Win 209	700-X	17.0	CB2118-12	1,145	7,900
1 1/8	Fed 209A	Clays	17.5	Rem Fig 8	1,145	7,900
1 1/8	Ched 209	International	19.3	Rem Fig 8	1,145	7,900
1 1/8	Fed 209A	Green Dot	19.0	Hor Versalite	1,145	8,000
1 1/8	Fed 209A	Green Dot	19.0	Rem RXP12	1,145	8,000
1 1/8	Win 209	Green Dot	19.5	Fed 12S3	1,145	8,000
1 1/8	Win 209	American Select	19.5	Fed 12S3	1,145	8,100
1 1/8	Fed 209A	Green Dot	19.5	Fed 12S3	1,145	8,100
1 1/8	Fed 209A	Clays	17.0	Win AA12	1,145	8,100
1 1/8	Rem 209P	International	18.8	G/BP CS12	1,145	8,100
1 1/8	Fed 209A	American Select	19.0	CB3118-12	1,145	8,200
1 1/8	Fed 209A	Green Dot	19.0	Win AA12	1,145	8,200
1 1/8	Fed 209A	Green Dot	19.0	Win AA12SL	1,145	8,200
1 1/8	CCI 209	Red Dot	18.0	Fed 12S3	1,145	8,200
1 1/8	Fed 209A	Red Dot	18.5	Windjammer	1,145	8,200
1 1/8	Rem 209P	Red Dot	18.5	Fed 12S3	1,145	8,200
1 1/8	Fed 209A	700-X	17.0	Rem TGT12	1,145	8,200
1 1/8	Fed 209A	International	18.4	Win AA12	1,145	8,200
1 1/8	CCI 209SC	Green Dot	21.0	Rem Fig 8	1,145	8,300
1 1/8	Ched 209	International	19.4	Fed 12S3	1,145	8,300
1 1/8	Fed 209A	Green Dot	20.0	Win WT12	1,145	8,400
1 1/8	Ched 209	Clays	18.2	Windjammer	1,145	8,400
1 1/8	CCI 209SC	American Select	18.5	Fed 12S3	1,145	8,500
1 1/8	Fed 209A	Green Dot	19.5	Fio FTW1	1,145	8,600
1 1/8	CCI 209SC	Green Dot	20.5	Fed 12S3	1,145	8,600
1 1/8	CCI 209M	Red Dot	18.0	Fed 12S3	1,145	8,600
1 1/8	Fed 209A	700-X	17.0	Fed 12S3	1,145	8,600
1 1/8	Rem 209P	Titewad	17.0	Rem Fig 8	1,145	8,600
1 1/8	Fed 209A	Clays	17.1	Fed 12S3	1,145	8,600
1 1/8	Rem 209P	Clays	17.8	Rem Fig 8	1,145	8,600
1 1/8	Fed 209A	American Select	19.0	Windjammer	1,145	8,700
1 1/8	Fed 209A	Clays	17.6	Windjammer	1,145	8,700
1 1/8	Fed 209A	Red Dot	18.0	Fed 12S3	1,145	8,800
1 1/8	Fed 209A	Red Dot	18.0	Rem Fig 8	1,145	8,800
1 1/8	Fed 209A	Titewad	17.3	Fed 12S3	1,145	8,900
1 1/8	Fed 209A	American Select	19.0	Rem Fig 8	1,145	9,000
1 1/8	CCI 209SC	Green Dot	20.5	Win AA12	1,145	9,000
1 1/8	Ched 209	Clays	17.9	Rem Fig 8	1,145	9,000
1 1/8	Win 209	Titewad	17.5	Win AA12SL	1,145	9,100
1 1/8	Fed 209A	Red Dot	18.0	Win AA12SL	1,145	9,200
1 1/8	Fed 209A	e3	17.0	Fed 12S3	1,145	9,260
1 1/8	Fed 209A	American Select	19.0	Win WT12	1,145	9,300
1 1/8	Fed 209A	Red Dot	18.5	Win WT12	1,145	9,300
1 1/8	Fed 209A	Red Dot	17.5	Win AA12	1,145	9,400

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Red Dot	18.0	Hor Versalite	1,145	9,400
1 1/8	Fed 209A	Red Dot	18.0	Rem RXP12	1,145	9,400
1 1/8	Ched 209	Titewad	17.2	Windjammer	1,145	9,400
1 1/8	CCI 209SC	Red Dot	19.5	Rem Fig 8	1,145	9,500
1 1/8	Ched 209	Clays	18.0	Fed 12S3	1,145	9,500
1 1/8	Fed 209A	American Select	18.5	Hor Versalite	1,145	9,600
1 1/8	Fed 209A	American Select	19.0	Win AA12	1,145	9,600
1 1/8	Win 209	Red Dot	17.5	Fed 12S3	1,145	9,600
1 1/8	Fed 209A	Red Dot	18.0	Fio FTW1	1,145	9,600
1 1/8	Fed 209A	Titewad	16.9	Rem Fig 8	1,145	9,600
1 1/8	CCI 209SC	Red Dot	19.0	Fed 12S3	1,145	9,800
1 1/8	Fed 209A	Titewad	16.8	Win AA12	1,145	9,800
1 1/8	Ched 209	Titewad	16.7	Rem Fig 8	1,145	9,900
1 1/8	Win 209	Clays	17.7	G/BP Pisk	1,145	10,100
1 1/8	CCI 209SC	Red Dot	18.5	Win AA12	1,145	10,200
1 1/8	Ched 209	Titewad	16.7	Fed 12S3	1,145	10,300
1 1/8	CCI 209M	Titewad	15.9	G/BP CS12	1,145	10,800
1 1/8	CCI 209	WST	19.5	Fed 12S3	1,145	8,500
1 1/8	Win 209	800-X	23.0	Windjammer	1,150	5,400
1 1/8	Win 209	SR7625	24.5	Rem Fig 8	1,150	5,800
1 1/8	Rem 209P	SR7625	24.5	CB2118-12	1,150	5,900
1 1/8	CCI 209	800-X	22.5	Rem Fig 8	1,150	5,900
1 1/8	Win 209	SR7625	24.0	CB2118-12	1,150	6,000
1 1/8	Fed 209A	800-X	22.5	CB2118-12	1,150	6,200
1 1/8	Rem 209P	PB	22.5	CB1118-12	1,150	6,300
1 1/8	Win 209	PB	22.0	CB1118-12	1,150	6,400
1 1/8	Fed 209A	SR7625	23.5	CB2118-12	1,150	6,400
1 1/8	Fed 209A	SR7625	23.5	Fed 12S3	1,150	6,400
1 1/8	Fed 209A	PB	21.0	Win AA12	1,150	7,000
1 1/8	Win 209	PB	22.0	Fed 12S3	1,150	7,000
1 1/8	Rem 209P	700-X	17.5	Rem TGT12	1,150	7,800
1 1/8	Win 209	700-X	17.0	Fed 12S3	1,150	8,500
1 1/8	Fed 209A	700-X	17.0	Win AA12SL	1,150	8,700
1 1/8	Rem 209P	SR7625	25.5	Rem Fig 8	1,155	5,700
1 1/8	Rem 209P	PB	22.5	Windjammer	1,155	5,900
1 1/8	Rem 209P	SR7625	24.5	Fed 12S3	1,155	6,000
1 1/8	Fed 209A	800-X	22.5	Rem Fig 8	1,155	6,000
1 1/8	Rem 209P	PB	22.5	Rem Fig 8	1,155	6,100
1 1/8	Win 209	SR7625	24.0	Win AA12	1,155	6,200
1 1/8	Win 209	SR7625	24.5	Fed 12S3	1,155	6,200
1 1/8	Win 209	800-X	22.0	Fed 12S3	1,155	6,300
1 1/8	CCI 209	800-X	22.5	Fed 12S3	1,155	6,400
1 1/8	Fed 209A	800-X	22.0	Fed 12S3	1,155	6,400
1 1/8	Rem 209P	PB	22.0	Fed 12S3	1,155	6,500
1 1/8	Fed 209A	SR7625	23.0	Win AA12	1,155	6,700
1 1/8	Rem 209P	700-X	17.5	Win AA12SL	1,155	8,200
1 1/8	Rem 209P	700-X	17.5	Fed 12S3	1,155	8,300
1 1/8	Fed 209A	700-X	17.0	CB2118-12	1,155	8,600

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	800-X	24.0	Windjammer	1,190	5,900
1 1/8	Win 209	800-X	24.0	Windjammer	1,190	5,900
1 1/8	Win 209	SR7625	25.5	Rem Fig 8	1,190	6,300
1 1/8	Rem 209P	PB	23.5	Rem Fig 8	1,190	6,600
1 1/8	Win 209	SR7625	25.0	Win AA12	1,190	6,600
1 1/8	Fed 209A	SR7625	24.5	Fed 12S3	1,190	6,900
1 1/8	Rem 209P	PB	23.0	Fed 12S3	1,190	7,000
1 1/8	Fed 209A	PB	22.5	Fed 12S3	1,190	7,600
1 1/8	Win 209	PB	23.0	Fed 12S3	1,190	7,600
1 1/8	Rem 209P	700-X	18.5	Rem TGT12	1,190	8,500
1 1/8	Rem 209P	700-X	18.5	Fed 12S3	1,190	8,900
1 1/8	Fed 209A	700-X	18.0	Rem TGT12	1,190	9,100
1 1/8	Win 209	700-X	18.0	Fed 12S3	1,190	9,400
1 1/8	Fed 209A	700-X	18.0	Win AA12SL	1,190	9,500
1 1/8	Rem 209P	SR7625	25.5	Fed 12S3	1,195	6,400
1 1/8	Win 209	SR7625	25.5	Fed 12S3	1,195	6,700
1 1/8	Fed 209A	800-X	23.0	CB2118-12	1,195	6,700
1 1/8	Fed 209A	SR7625	24.5	CB2118-12	1,195	6,800
1 1/8	Win 209	800-X	23.0	Fed 12S3	1,195	6,800
1 1/8	Fed 209A	800-X	23.0	Fed 12S3	1,195	6,900
1 1/8	Fed 209A	800-X	23.0	Win AA12	1,195	7,000
1 1/8	Win 209	800-X	23.0	Win AA12	1,195	7,000
1 1/8	Fed 209A	PB	22.5	CB1118-12	1,195	7,100
1 1/8	Rem 209P	PB	23.0	Win AA12SL	1,195	7,300
1 1/8	Win 209	PB	23.0	Win AA12	1,195	7,400
1 1/8	Win 209	700-X	18.5	Rem TGT12	1,195	8,600
1 1/8	Rem 209P	700-X	18.5	Win AA12SL	1,195	8,700
1 1/8	Rem 209P	700-X	18.5	CB2118-12	1,195	8,700
1 1/8	Fed 209A	700-X	18.0	CB2118-12	1,195	9,500
1 1/8	Rem 209P	SR7625	27.0	Windjammer	1,200	5,400
1 1/8	Win 209	SR7625	26.0	Windjammer	1,200	6,200
1 1/8	CCI 209	800-X	24.0	Win AA12	1,200	6,300
1 1/8	CCI 209	800-X	24.0	Rem Fig 8	1,200	6,300
1 1/8	Fed 209A	SR7625	25.5	Windjammer	1,200	6,400
1 1/8	Win 209	800-X	23.5	Rem Fig 8	1,200	6,500
1 1/8	Win 209	SR7625	25.5	CB2118-12	1,200	6,700
1 1/8	Win 209	800-X	23.5	CB2118-12	1,200	6,700
1 1/8	CCI 209	800-X	24.0	Fed 12S3	1,200	6,800
1 1/8	Fed 209A	Unique	22.5	Windjammer	1,200	6,900
1 1/8	Rem 209P	Unique	24.0	Fed 12S3	1,200	6,900
1 1/8	Rem 209P	PB	23.5	CB1118-12	1,200	7,000
1 1/8	Win 209	PB	23.5	CB1118-12	1,200	7,000
1 1/8	Win 209	PB	23.5	Rem Fig 8	1,200	7,000
1 1/8	Fed 209A	Unique	22.5	Fed 12S3	1,200	7,300
1 1/8	Fed 209A	Unique	22.5	Rem Fig 8	1,200	7,300
1 1/8	Fed 209A	PB	23.0	Rem Fig 8	1,200	7,300
1 1/8	CCI 209	Universal	25.2	Windjammer	1,200	7,300
1 1/8	CCI 209SC	Universal	24.5	Windjammer	1,200	7,300

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	SR7625	24.5	Win AA12	1,200	7,400
1 1/8	Win 209	PB	23.5	Win AA12SL	1,200	7,500
1 1/8	Win 209	International	21.0	Win AA12SL	1,200	7,500
1 1/8	CCI 209SC	Universal	23.2	Hor Versalite	1,200	7,700
1 1/8	Fed 209A	Unique	22.5	Rem RXP12	1,200	7,800
1 1/8	CCI 209M	International	20.6	Rem TGT12	1,200	7,800
1 1/8	Rem 209P	Green Dot	21.5	Fed 12S3	1,200	7,900
1 1/8	CCI 209SC	International	20.0	Rem TGT12	1,200	7,900
1 1/8	Fed 209A	Unique	22.0	Hor Versalite	1,200	8,000
1 1/8	CCI 209M	Unique	23.5	Fed 12S3	1,200	8,000
1 1/8	Fed 209A	International	20.8	Windjammer	1,200	8,000
1 1/8	Win 209	International	20.8	Windjammer	1,200	8,000
1 1/8	Win 209	Universal	24.0	Rem Fig 8	1,200	8,000
1 1/8	Fed 209A	Unique	22.5	Fio FTW1	1,200	8,100
1 1/8	Fed 209A	Unique	22.5	Win AA12	1,200	8,100
1 1/8	Win 209	Clays	19.4	Windjammer	1,200	8,100
1 1/8	Fio 616	International	21.1	Fio TL1	1,200	8,100
1 1/8	Fed 209A	Green Dot	21.0	Windjammer	1,200	8,200
1 1/8	Fed 209A	Unique	23.5	Win WT12	1,200	8,300
1 1/8	CCI 209	Unique	24.0	Fed 12S3	1,200	8,300
1 1/8	Fed 209A	Green Dot	20.0	Rem Fig 8	1,200	8,600
1 1/8	CCI 209M	Green Dot	21.0	Fed 12S3	1,200	8,600
1 1/8	Win 209	Unique	23.0	Fed 12S3	1,200	8,600
1 1/8	Fed 209A	Universal	23.0	Fed 12S3	1,200	8,700
1 1/8	Fio 616	Universal	23.3	Fio TL1	1,200	8,700
1 1/8	Fed 209A	Green Dot	20.0	Rem RXP12	1,200	8,800
1 1/8	Fed 209A	Green Dot	20.0	Win AA12SL	1,200	8,800
1 1/8	Fed 209A	Green Dot	21.5	Win WT12	1,200	8,800
1 1/8	Fed 209A	International	20.5	Fed 12S3	1,200	8,800
1 1/8	Win 209	Universal	23.2	Win AA12	1,200	8,800
1 1/8	CCI 209SC	Green Dot	22.5	Fed 12S3	1,200	8,900
1 1/8	CCI 209M	Red Dot	19.0	Fed 12S3	1,200	8,900
1 1/8	Rem 209P	American Select	21.5	Fed 12S3	1,200	9,000
1 1/8	Fed 209A	Green Dot	20.0	Fed 12S3	1,200	9,000
1 1/8	Win 209	Green Dot	20.5	Fed 12S3	1,200	9,000
1 1/8	Ched 209	International	20.8	Windjammer	1,200	9,000
1 1/8	Rem 209P	International	20.0	G/BP CS12	1,200	9,100
1 1/8	Fed 209A	American Select	20.5	Fed 12S3	1,200	9,200
1 1/8	Fed 209A	Green Dot	20.0	Win WAA12	1,200	9,200
1 1/8	CCI 209	Green Dot	22.0	Fed 12S3	1,200	9,200
1 1/8	CCI 209SC	Green Dot	23.0	Rem Fig 8	1,200	9,200
1 1/8	Fed 209A	Green Dot	20.5	Fio FTW1	1,200	9,300
1 1/8	Rem 209P	Red Dot	19.5	Fed 12S3	1,200	9,300
1 1/8	Ched 209	International	21.0	Rem Fig 8	1,200	9,300
1 1/8	Fed 209A	American Select	20.5	Win AA12	1,200	9,400
1 1/8	Fed 209A	Green Dot	20.5	Hor Versalite	1,200	9,400
1 1/8	Ched 209	International	20.6	Fed 12S3	1,200	9,400
1 1/8	Fed 209A	Red Dot	19.0	Rem Fig 8	1,200	9,500

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Titewad	18.0	Rem Fig 8	1,200	9,500
1 1/8	Fed 209A	International	19.6	Win AA12	1,200	9,500
1 1/8	Fed 209A	American Select	20.5	CB3118-12	1,200	9,600
1 1/8	Fed 209A	Red Dot	19.5	Windjammer	1,200	9,600
1 1/8	Fed 209A	Clays	19.0	Rem Fig 8	1,200	9,600
1 1/8	Fed 209A	American Select	20.5	Windjammer	1,200	9,800
1 1/8	CCI 209	Red Dot	20.0	Fed 12S3	1,200	9,800
1 1/8	CCI 209SC	Red Dot	21.0	Rem Fig 8	1,200	9,800
1 1/8	Win 209	Titewad	18.2	Win AA12SL	1,200	9,800
1 1/8	Win 209	American Select	20.5	Fed 12S3	1,200	9,900
1 1/8	Fed 209A	Red Dot	19.0	Rem RXP12	1,200	9,900
1 1/8	Ched 209	Clays	19.5	Windjammer	1,200	9,900
1 1/8	Rem 209P	Clays	18.9	Rem Fig 8	1,200	9,900
1 1/8	CCI 209SC	American Select	20.5	Fed 12S3	1,200	10,000
1 1/8	Fed 209A	Red Dot	19.0	Win AA12SL	1,200	10,000
1 1/8	Fed 209A	Red Dot	19.5	Fe d 12S3	1,200	10,000
1 1/8	Fed 209A	Red Dot	19.0	Hor Versalite	1,200	10,100
1 1/8	Fed 209A	Clays	18.8	Windjammer	1,200	10,100
1 1/8	CCI 209SC	Green Dot	22.0	Win AA12	1,200	10,200
1 1/8	Fed 209A	American Select	20.0	Rem Fig 8	1,200	10,300
1 1/8	Fed 209A	Titewad	18.8	Fed 12S3	1,200	10,300
1 1/8	Fed 209A	Clays	18.5	Win AA12	1,200	10,300
1 1/8	Fed 209A	American Select	20.5	Win WT12	1,200	10,400
1 1/8	Fed 209A	Red Dot	19.0	Win AA12	1,200	10,400
1 1/8	Fed 209A	Red Dot	20.0	Win WT12	1,200	10,400
1 1/8	Fed 209A	Clays	19.0	Fed 12S3	1,200	10,400
1 1/8	Fed 209A	Red Dot	19.0	Fio FTW1	1,200	10,500
1 1/8	Win 209	Red Dot	19.0	Fed 12S3	1,200	10,500
1 1/8	CCI 209SC	Red Dot	20.0	Win AA12	1,200	10,500
1 1/8	Ched 209	Clays	19.3	Rem Fig 8	1,200	10,500
1 1/8	Fed 209A	e3	18.0	Fed 12S3	1,200	10,660
1 1/8	CCI 209SC	Red Dot	20.5	Fed 12S3	1,200	10,700
1 1/8	Fed 209A	American Select	20.0	Hor Versalite	1,200	10,900
1 1/8	Ched 209	Titewad	18.5	Windjammer	1,200	10,900
1 1/8	Ched 209	Clays	19.2	Fed 12S3	1,200	10,900
1 1/8	Ched 209	Titewad	18.1	Rem Fig 8	1,200	11,100
1 1/8	Fed 209A	Titewad	18.0	Win AA12	1,200	11,100
1 1/8	Fed 209A	Titewad	18.1	Rem Fig 8	1,200	11,300
1 1/8	Win 209	Clays	18.8	G/BP Pisk	1,200	11,300
1 1/8	CCI 209	WST	21.0	Fed 12S3	1,200	10,300
1 1/8	Win 209	WST	21.0	Fed 12S3	1,200	9,500
1 1/8	CCI 209	800-X	25.0	Windjammer	1,205	5,700
1 1/8	Rem 209P	SR7625	27.0	Rem Fig 8	1,205	6,000
1 1/8	CCI 209	800-X	24.5	CB2118-12	1,205	6,200
1 1/8	Rem 209P	PB	24.0	Windjammer	1,205	6,400
1 1/8	Fed 209A	SR7625	25.5	Rem Fig 8	1,205	6,600
1 1/8	Rem 209P	SR7625	25.5	Win AA12	1,205	6,600
1 1/8	Rem 209P	SR7625	26.0	CB2118-12	1,205	6,600

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	800-X	24.0	Rem Fig 8	1,205	6,600
1 1/8	Win 209	PB	23.5	Windjammer	1,205	7,000
1 1/8	Fed 209A	PB	23.0	Windjammer	1,205	7,200
1 1/8	Fed 209A	PB	22.5	Win AA12	1,205	7,900
1 1/8	Win 209	700-X	18.5	Win AA12SL	1,205	9,100
1 1/8	Win 209	700-X	18.5	CB2118-12	1,205	9,200
1 1/8	Fed 209A	700-X	18.5	Fed 12S3	1,205	9,500
1 1/8	Win 209	SR7625	27.0	Windjammer	1,245	6,900
1 1/8	Fed 209A	SR7625	26.5	Rem Fig 8	1,245	7,100
1 1/8	Rem 209P	PB	25.0	Rem Fig 8	1,245	7,500
1 1/8	Win 209	PB	25.0	CB1118-12	1,245	7,600
1 1/8	Win 209	PB	24.5	Win AA12	1,245	8,100
1 1/8	Win 209	700-X	19.5	Win AA12SL	1,245	9,900
1 1/8	Win 209	700-X	19.5	CB2118-12	1,245	10,000
1 1/8	CCI 209	800-X	26.0	Windjammer	1,250	6,300
1 1/8	Rem 209P	PB	25.5	Windjammer	1,250	6,900
1 1/8	Win 209	SR7625	27.0	Rem Fig 8	1,250	7,100
1 1/8	Rem 209P	SR7625	27.0	CB2118-12	1,250	7,300
1 1/8	Win 209	SR7625	27.0	CB2118-12	1,250	7,300
1 1/8	Fed 209A	Herco	26.0	Windjammer	1,250	7,400
1 1/8	Win 209	SR7625	26.5	Win AA12	1,250	7,400
1 1/8	Fed 209A	800-X	24.5	CB2118-12	1,250	7,400
1 1/8	Win 209	800-X	24.5	Fed 12S3	1,250	7,500
1 1/8	Rem 209P	Unique	25.0	Fed 12S3	1,250	7,600
1 1/8	Fed 209A	Herco	26.0	Rem Fig 8	1,250	7,700
1 1/8	Fed 209A	Unique	24.0	Windjammer	1,250	7,700
1 1/8	Win 209	PB	24.5	Windjammer	1,250	7,700
1 1/8	Fed 209A	SR7625	26.0	CB2118-12	1,250	7,700
1 1/8	Fed 209A	Unique	23.5	Rem Fig 8	1,250	7,800
1 1/8	Fed 209A	PB	24.0	Windjammer	1,250	7,800
1 1/8	Fed 209A	Herco	26.0	Fed12S3	1,250	8,000
1 1/8	Fed 209A	Herco	26.0	Rem RXP12	1,250	8,000
1 1/8	Fed 209A	PB	24.0	CB1118-12	1,250	8,000
1 1/8	Fed 209A	Unique	23.5	Fed 12S3	1,250	8,100
1 1/8	Fed 209A	Herco	26.0	Hor Versalite	1,250	8,200
1 1/8	Fed 209A	Herco	26.0	Win AA12	1,250	8,300
1 1/8	Fed 209A	Unique	24.0	Hor Versalite	1,250	8,300
1 1/8	Fed 209A	Green Dot	22.5	Windjammer	1,250	8,400
1 1/8	Fed 209A	Unique	23.0	Win AA12	1,250	8,400
1 1/8	Fed 209A	Unique	23.5	Rem RXP12	1,250	8,400
1 1/8	Win 209	PB	24.5	Fed 12S3	1,250	8,400
1 1/8	Rem 209P	Green Dot	23.0	Fed 12S3	1,250	8,800
1 1/8	Fed 209A	Green Dot	21.5	Hor Versalite	1,250	9,000
1 1/8	CCI 209M	Unique	24.0	Fed 12S3	1,250	9,100
1 1/8	Fed 209A	Green Dot	22.0	Rem Fig 8	1,250	9,200
1 1/8	Fed 209A	Green Dot	21.5	Win AA12	1,250	9,400
1 1/8	Fed 209A	Green Dot	21.5	Fed 12S3	1,250	9,500
1 1/8	Fed 209A	Red Dot	20.0	Rem Fig 8	1,250	9,500

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Red Dot	20.5	Windjammer	1,250	9,500
1 1/8	Rem 209P	700-X	20.0	Rem TGT12	1,250	9,500
1 1/8	Rem 209P	700-X	20.0	CB2118-12	1,250	9,600
1 1/8	Fed 209A	Green Dot	21.5	Rem RXP12	1,250	9,700
1 1/8	CCI 209M	Green Dot	22.5	Fed 12S3	1,250	9,800
1 1/8	Win 209	Unique	24.0	Fed 12S3	1,250	9,800
1 1/8	Rem 209P	700-X	20.0	Fed 12S3	1,250	9,800
1 1/8	Fed 209A	American Select	22.0	Fed 12S3	1,250	10,100
1 1/8	Fed 209A	Red Dot	20.0	Rem RXP12	1,250	10,100
1 1/8	Win 209	Green Dot	22.5	Fed 12S3	1,250	10,500
1 1/8	Fed 209A	700-X	19.5	Rem TGT12	1,250	10,500
1 1/8	Fed 209A	American Select	22.0	CB3118-12	1,250	10,600
1 1/8	Fed 209A	700-X	19.5	Win AA12SL	1,250	10,600
1 1/8	Fed 209A	American Select	21.5	Windjammer	1,250	10,700
1 1/8	Fed 209A	Red Dot	20.0	Hor Versalite	1,250	10,700
1 1/8	Fed 209A	American Select	21.0	Hor Versalite	1,250	10,900
1 1/8	Win 209	800-X	25.5	Windjammer	1,255	6,700
1 1/8	Fed 209A	800-X	25.5	Rem Fig 8	1,255	7,100
1 1/8	Win 209	800-X	25.0	Rem Fig 8	1,255	7,100
1 1/8	Rem 209P	SR7625	27.5	Win AA12	1,255	7,200
1 1/8	Rem 209P	SR7625	27.0	Fed 12S3	1,255	7,400
1 1/8	Win 209	SR7625	27.0	Fed 12S3	1,255	7,500
1 1/8	Fed 209A	800-X	24.5	Win AA12	1,255	7,700
1 1/8	Win 209	PB	25.0	Rem Fig 8	1,255	7,800
1 1/8	Fed 209A	PB	24.5	Rem Fig 8	1,255	8,000
1 1/8	CCI 209SC	Universal	26.0	Windjammer	1,255	8,100
1 1/8	Win 209	PB	25.0	Win AA12SL	1,255	8,200
1 1/8	CCI 209	Universal	26.5	Windjammer	1,255	8,200
1 1/8	CCI 209M	International	22.5	Rem TGT12	1,255	8,600
1 1/8	CCI 209SC	Universal	24.5	Hor Versalite	1,255	8,600
1 1/8	Fed 209A	PB	24.0	Fed 12S3	1,255	8,700
1 1/8	Win 209	Universal	25.0	Rem Fig 8	1,255	8,700
1 1/8	Win 209	International	22.4	Win AA12SL	1,255	8,900
1 1/8	Win 209	International	22.2	Windjammer	1,255	9,000
1 1/8	Fed 209A	International	22.5	Windjammer	1,255	9,200
1 1/8	Fio 616	International	22.5	Fio TL1	1,255	9,200
1 1/8	Rem 209P	700-X	20.0	Win AA12SL	1,255	9,500
1 1/8	CCI 209SC	International	21.5	Rem TGT12	1,255	9,500
1 1/8	Fio 616	Universal	24.2	Fio TL1	1,255	9,500
1 1/8	Win 209	700-X	20.0	Rem TGT12	1,255	9,600
1 1/8	Fed 209A	Universal	24.4	Fed 12S3	1,255	9,600
1 1/8	Win 209	Universal	24.5	Win AA12	1,255	9,700
1 1/8	Ched 209	International	22.0	Windjammer	1,255	10,000
1 1/8	Ched 209	International	22.0	Rem Fig 8	1,255	10,100
1 1/8	Ched 209	International	21.8	Fed 12S3	1,255	10,500
1 1/8	Rem 209P	International	21.2	G/BP CS12	1,255	10,500
1 1/8	Fed 209A	International	22.2	Fed 12S3	1,255	10,600
1 1/8	Win 209	700-X	19.5	Fed 12S3	1,255	10,700

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	International	20.7	Win AA12	1,255	10,700
1 1/8	Rem 209P	Clays	20.1	Rem Fig 8	1,255	11,300
1 1/8	Ched 209	Clays	20.9	Windjammer	1,255	11,400
1 1/8	Rem 209P	SR7625	28.5	Rem Fig 8	1,260	6,300
1 1/8	Fed 209A	800-X	25.5	Windjammer	1,260	6,700
1 1/8	CCI 209	800-X	26.0	Rem Fig 8	1,260	6,900
1 1/8	CCI 209	800-X	26.0	Fed 12S3	1,260	7,300
1 1/8	Win 209	800-X	25.0	CB2118-12	1,260	7,400
1 1/8	Fed 209A	SR7625	26.5	Fed 12S3	1,260	7,700
1 1/8	Rem 209P	PB	25.0	Win AA12SL	1,260	8,000
1 1/8	Fed 209A	PB	24.0	Win AA12	1,260	8,800
1 1/8	Fed 209A	700-X	20.0	Fed 12S3	1,260	10,400
1 1/8	Fed 209A	700-X	19.5	CB2118-12	1,260	10,800
1 1/8	Rem 209P	SR7625	28.5	Windjammer	1,265	6,100
1 1/8	CCI 209	800-X	26.0	CB2118-12	1,265	6,800
1 1/8	CCI 209	800-X	25.5	Win AA12	1,265	7,100
1 1/8	Fed 209A	SR7625	27.0	Windjammer	1,265	7,400
1 1/8	Fed 209A	800-X	25.0	Fed 12S3	1,265	7,700
1 1/8	Win 209	800-X	25.0	Win AA12	1,265	7,700
1 1/8	Rem 209P	PB	25.0	CB1118-12	1,265	8,000
1 1/8	Fed 209A	SR7625	26.0	Win AA12	1,265	8,200
1 1/8	Rem 209P	PB	25.0	Fed 12S3	1,265	8,400
1 1/8	Fed 209A	Green Dot	24.0	Windjammer	1,310	8,800
1 1/8	CCI 209	Universal	28.0	Windjammer	1,310	8,800
1 1/8	CCI 209SC	Universal	26.7	Windjammer	1,310	8,900
1 1/8	Fed 209A	Unique	25.0	Win AA12	1,310	9,200
1 1/8	Win 209	Universal	26.8	Rem Fig 8	1,310	9,500
1 1/8	CCI 209SC	Universal	25.5	Hor Versalite	1,310	9,600
1 1/8	Fed 209A	Unique	25.0	Windjammer	1,310	9,700
1 1/8	Fed 209A	Unique	25.0	Hor Versalite	1,310	10,000
1 1/8	Fio 616	Universal	26.0	Fio TL1	1,310	10,100
1 1/8	Fed 209A	Unique	26.0	Rem RXP12	1,310	10,300
1 1/8	Fed 209A	Green Dot	23.0	Win AA12	1,310	10,400
1 1/8	Fed 209A	Green Dot	24.0	Rem RXP12	1,310	10,400
1 1/8	Win 209	Universal	25.0	Win AA12	1,310	10,400
1 1/8	Fed 209A	Universal	25.7	Fed 12S3	1,310	10,500
1 1/8	Fed 209A	Herco	30.0	Win AA12F114	1,400	10,500
1 1/8	Win 209	Longshot	34.2	Fed 12S3	1,420	7,100
1 1/8	Win 209	Longshot	34.9	Rem Fig 8	1,420	7,100
1 1/8	Win 209	Longshot	35.0	Windjammer	1,420	7,100
1 1/8	Win 209	Longshot	34.0	Win AA12	1,420	7,600
1 1/8	Rem 209P	Longshot	32.9	Windjammer	1,420	7,900
1 1/8	Fed 209A	Longshot	32.3	Windjammer	1,420	8,200
1 1/8	Rem 209P	Longshot	32.1	Rem Fig 8	1,420	8,200
1 1/8	Rem 209P	Longshot	32.4	Win AA12	1,420	8,200
1 1/8	CCI 209M	Longshot	32.2	Fed 12S3	1,420	8,400
1 1/8	Rem 209P	Longshot	32.9	Fed 12S3	1,420	8,400
1 1/8	CCI 209M	Longshot	32.2	Rem Fig 8	1,420	8,500

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Longshot	32.2	Rem Fig 8	1,420	8,600
1 1/8	CCI 209M	Longshot	31.4	Win AA12	1,420	8,800
1 1/8	Fed 209A	Longshot	31.7	Win AA12	1,420	8,900
1 1/8	Fed 209A	Longshot	32.0	Fed 12S3	1,420	9,000
1 1/8	Fed 209A	Herco	32.0	Red PC	1,440	10,500
1 1/8	Win 209	Longshot	36.2	Windjammer	1,475	8,000
1 1/8	Win 209	Longshot	36.0	Rem Fig 8	1,475	8,100
1 1/8	Win 209	Longshot	35.5	Fed 12S3	1,475	8,200
1 1/8	Win 209	Longshot	35.2	Win AA12	1,475	8,500
1 1/8	Rem 209P	Longshot	34.4	Windjammer	1,475	8,800
1 1/8	Rem 209P	Longshot	33.9	Rem Fig 8	1,475	9,100
1 1/8	Rem 209P	Longshot	33.9	Win AA12	1,475	9,100
1 1/8	Fed 209A	Longshot	33.9	Windjammer	1,475	9,200
1 1/8	Rem 209P	Longshot	34.1	Fed 12S3	1,475	9,300
1 1/8	CCI 209M	Longshot	33.8	Rem Fig 8	1,475	9,400
1 1/8	CCI 209M	Longshot	33.6	Fed 12S3	1,475	9,500
1 1/8	CCI 209M	Longshot	33.2	Win AA12	1,475	9,500
1 1/8	Fed 209A	Longshot	33.6	Rem Fig 8	1,475	9,500
1 1/8	Fed 209A	Longshot	33.1	Win AA12	1,475	9,700
1 1/8	Fed 209A	Longshot	33.3	Fed 12S3	1,475	10,000
1 1/8	Win 209	Longshot	37.4	Windjammer	1,530	8,900
1 1/8	Win 209	Longshot	37.1	Rem Fig 8	1,530	9,100
1 1/8	Win 209	Longshot	36.8	Fed 12S3	1,530	9,400
1 1/8	Win 209	Longshot	36.4	Win AA12	1,530	9,400
1 1/8	Rem 209P	Longshot	35.9	Windjammer	1,530	9,600
1 1/8	Rem 209P	Longshot	35.6	Rem Fig 8	1,530	10,000
1 1/8	Rem 209P	Longshot	35.4	Win AA12	1,530	10,000
1 1/8	Fed 209A	Longshot	35.5	Windjammer	1,530	10,200
1 1/8	Rem 209P	Longshot	35.3	Fed 12S3	1,530	10,200
1 1/8	CCI 209M	Longshot	35.0	Win AA12	1,530	10,300
1 1/8	CCI 209M	Longshot	35.5	Rem Fig 8	1,530	10,400
1 1/8	Fed 209A	Longshot	35.0	Rem Fig 8	1,530	10,500
1 1/8	CCI 209M	Longshot	34.9	Fed 12S3	1,530	10,600
1 1/8	Fed 209A	Longshot	34.6	Win AA12	1,530	10,700
1 1/8	Fed 209A	Longshot	34.6	Fed 12S3	1,530	11,500
1 1/8	Win 209	Longshot	38.2	Rem Fig 8	1,585	10,000
1 1/8	Win 209	Longshot	38.5	Windjammer	1,585	10,100
1 1/8	Win 209	Longshot	37.8	Win AA12	1,585	10,400
1 1/8	Rem 209P	Longshot	37.5	Windjammer	1,585	10,500
1 1/8	Win 209	Longshot	38.1	Fed 12S3	1,585	10,600
1 1/8	Rem 209P	Longshot	37.4	Rem Fig 8	1,585	10,900
1 1/8	Rem 209P	Longshot	36.9	Win AA12	1,585	10,900
1 1/8	CCI 209M	Longshot	36.8	Win AA12	1,585	11,000
1 1/8	Fed 209A	Longshot	37.1	Windjammer	1,585	11,200
1 1/8	CCI 209M	Longshot	37.1	Rem Fig 8	1,585	11,400
1 1/8	Fed 209A	Longshot	36.4	Rem Fig 8	1,585	11,400
1 1/8	Fed 209A	Longshot	36.0	Win AA12	1,585	11,500
1 1/4	Fed 209A	700-X	18.0	Fed 12S4	1,165	11,500

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	700-X	18.0	Win AA12	1,180	11,500
1 1/4	Win 209	700-X	19.0	Fed 12S3	1,195	11,500
1 1/4	Fed 209A	700-X	19.0	Rem Fig 8	1,200	11,300
1 1/4	Win 209	700-X	19.0	Win AA12	1,200	11,500
1 1/4	Rem 209P	Blue Dot	35.5	Rem RP12	1,205	8,100
1 1/4	CCI 209M	Blue Dot	34.0	Rem RP12	1,205	9,400
1 1/4	Fed 209A	Blue Dot	34.0	Rem RP12	1,205	9,700
1 1/4	Win 209	Blue Dot	34.5	Rem RP12	1,205	9,900
1 1/4	Rem 209P	700-X	19.5	Fed 12S3	1,205	11,500
1 1/4	Win 209	700-X	19.5	Rem Fig 8	1,210	11,100
1 1/4	Rem 209P	700-X	19.5	Win AA12	1,215	11,400
1 1/4	Rem 209P	SR4756	31.5	Fed 12S4	1,220	7,100
1 1/4	Fed 209A	Herco	26.5	Rem SP12	1,220	7,800
1 1/4	Fed 209A	Herco	26.0	Win AA12F114	1,220	8,000
1 1/4	Rem 209P	Herco	25.5	Fed 12S4	1,220	8,100
1 1/4	Fed 209A	Herco	26.0	Fed 12S4	1,220	8,400
1 1/4	Win 209	Herco	26.0	Fed 12S4	1,220	8,500
1 1/4	CCI 209M	Herco	25.5	Fed 12S4	1,220	8,700
1 1/4	Fed 209A	Unique	25.0	Win AA12F114	1,220	8,700
1 1/4	Fed 209A	Unique	25.5	Rem SP12	1,220	8,700
1 1/4	CCI 209M	Herco	26.0	Fed 12S4	1,220	8,900
1 1/4	Fed 209A	Unique	25.0	Fed 12S4	1,220	9,100
1 1/4	Win 209	Unique	25.0	Fed 12S4	1,220	9,200
1 1/4	CCI 209M	Unique	25.5	Fed 12S4	1,220	9,200
1 1/4	Fio 616	Universal	24.7	Rem SP12	1,220	9,200
1 1/4	Win 209	Herco	25.5	Fed 12S4	1,220	9,400
1 1/4	Win 209	Unique	24.0	Fed 12S4	1,220	9,500
1 1/4	CCI 209M	Unique	24.5	Fed 12S4	1,220	9,500
1 1/4	CCI 209SC	Universal	24.0	Fed 12S4	1,220	9,500
1 1/4	Win 209	HS-6	32.0	Win AA12F114	1,220	9,600
1 1/4	Fed 209A	Herco	26.0	Rem SP12	1,220	9,700
1 1/4	Rem 209P	Unique	25.0	Fed 12S4	1,220	9,800
1 1/4	Fed 209A	Herco	25.0	Win AA12F114	1,220	10,100
1 1/4	CCI 209	Universal	25.0	Fed 12S4	1,220	10,100
1 1/4	Fed 209A	Herco	25.0	Fed 12S4	1,220	10,200
1 1/4	Win 209	Universal	24.5	Win AA12F114	1,220	10,300
1 1/4	Fed 209A	Unique	24.0	Rem SP12	1,220	10,400
1 1/4	Fed 209A	Universal	23.3	Fed 12S4	1,220	10,400
1 1/4	Fed 209A	Unique	24.0	Fed 12S4	1,220	10,500
1 1/4	Fed 209A	Unique	24.0	Win AA12F114	1,220	10,600
1 1/4	Fed 209A	PB	23.5	Fed 12S4	1,225	10,500
1 1/4	Fed 209A	700-X	20.0	Windjammer	1,230	11,300
1 1/4	Win 209	700-X	21.0	Windjammer	1,250	11,500
1 1/4	Rem 209P	700-X	21.0	Rem Fig 8	1,255	11,500
1 1/4	Rem 209P	700-X	21.0	Windjammer	1,260	11,500
1 1/4	Rem 209P	SR4756	33.0	Fed 12S4	1,265	7,600
1 1/4	Win 209	800-X	25.5	Win AA12	1,265	8,600
1 1/4	Rem 209P	800-X	27.0	Rem SP12	1,270	7,700

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Win 209	800-X	26.0	CB3118-12AR	1,270	8,100
1 1/4	Rem 209P	SR7625	29.0	Rem SP12	1,270	8,200
1 1/4	Win 209	SR7625	28.5	Windjammer	1,270	8,300
1 1/4	Rem 209P	SR7625	28.0	Fed 12S3	1,270	8,900
1 1/4	Fed 209A	SR4756	30.0	Rem SP12	1,270	9,000
1 1/4	Win 209	SR7625	28.0	Win AA12	1,270	9,100
1 1/4	Rem 209P	PB	27.5	Rem SP12	1,270	9,200
1 1/4	Win 209	SR7625	28.0	Fed 12S3	1,270	9,200
1 1/4	Win 209	PB	26.5	CB3118-12AR	1,270	10,000
1 1/4	Fed 209A	SR7625	27.0	Fed 12S3	1,270	10,100
1 1/4	Fed 209A	SR7625	26.5	CB3118-12AR	1,270	10,100
1 1/4	Fed 209A	PB	25.5	Rem Fig 8	1,270	10,500
1 1/4	Fed 209A	PB	25.0	Fed 12S4	1,270	11,300
1 1/4	Rem 209P	800-X	27.0	CB3118-12AR	1,275	7,700
1 1/4	Rem 209P	800-X	27.0	Win AA12	1,275	7,900
1 1/4	Fed 209A	Herco	27.5	Rem SP12	1,275	8,200
1 1/4	Win 209	800-X	26.0	Rem SP12	1,275	8,200
1 1/4	Win 209	SR4756	30.5	Win AA12R	1,275	8,400
1 1/4	Win 209	Blue Dot	35.0	Fed 12S4	1,275	8,700
1 1/4	Fed 209A	Herco	27.5	Win AA12F114	1,275	8,700
1 1/4	Fed 209A	Blue Dot	34.0	Fed 12S4	1,275	8,900
1 1/4	Win 209	Herco	27.5	Fed 12S4	1,275	9,000
1 1/4	CCI 209M	Blue Dot	35.0	Fed 12S4	1,275	9,100
1 1/4	Rem 209P	Herco	27.5	Fed 12S4	1,275	9,200
1 1/4	CCI 209M	Herco	27.5	Fed 12S4	1,275	9,500
1 1/4	Fed 209A	Herco	28.0	Fed 12S4	1,275	9,500
1 1/4	Rem 209P	PB	26.5	CB3118-12AR	1,275	9,600
1 1/4	Fed 209A	Herco	27.0	Rem SP12	1,275	10,100
1 1/4	Fed 209A	SR2725	27.0	Win AA12	1,275	10,100
1 1/4	Fed 209A	Herco	27.0	Win AA12F114	1,275	10,500
1 1/4	Win 209	PB	26.0	Fed 12S4	1,275	10,800
1 1/4	Fed 209A	PB	25.5	CB3118-12AR	1,275	11,100
1 1/4	CCI 209	WSF	27.0	Fed 12S4	1,275	9,200
1 1/4	Rem 209P	SR7625	29.0	Windjammer	1,280	8,300
1 1/4	Win 209	800-X	26.0	Fed 12S3	1,280	8,800
1 1/4	Fed 209A	800-X	26.0	CB3118-12AR	1,280	8,900
1 1/4	Win 209	SR4756	31.0	Fed 12S4	1,280	9,100
1 1/4	Fed 209A	800-X	25.5	Rem SP12	1,280	9,100
1 1/4	Fed 209A	800-X	25.0	Fed 12S4	1,280	9,500
1 1/4	Win 209	PB	26.5	Rem SP12	1,280	9,800
1 1/4	Fed 209A	SR7625	27.0	Rem SP12	1,280	10,000
1 1/4	Rem 209P	SR4756	33.0	Win AA12R	1,285	8,000
1 1/4	Fed 209A	SR4756	30.5	Win AA12R	1,285	8,900
1 1/4	Rem 209P	800-X	26.5	Fed 12S4	1,285	8,900
1 1/4	Fed 209A	800-X	26.0	Win AA12	1,285	9,200
1 1/4	Fed 209A	SR4756	30.0	Fed 12S4	1,285	9,700
1 1/4	Win 209	SR4756	32.0	Rem RP12	1,290	8,800
1 1/4	Rem 209P	PB	26.5	Fed 12S4	1,295	10,000

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	PB	26.0	CB3118-12AR	1,295	11,500
1 1/4	Fed 209A	Herco	28.0	Win AA12F114	1,300	10,750
1 1/4	Rem 209P	PB	28.0	CB3118-12AR	1,305	10,200
1 1/4	Fed 209A	Herco	29.0	Red PC	1,310	10,000
1 1/4	Rem 209P	SR4756	33.0	Rem SP12	1,315	7,400
1 1/4	Rem 209P	SR7625	30.5	Rem SP12	1,315	8,900
1 1/4	Win 209	SR4756	32.0	Win AA12R	1,315	8,900
1 1/4	Win 209	SR7625	30.0	Windjammer	1,315	9,000
1 1/4	Fed 209A	PB	27.0	Rem Fig 8	1,315	11,500
1 1/4	Win 209	PB	28.0	Rem SP12	1,320	10,600
1 1/4	Fed 209A	SR7625	28.0	CB3118-12AR	1,320	10,800
1 1/4	Win 209	PB	27.5	Fed 12S4	1,320	11,500
1 1/4	Rem 209P	SR4756	34.0	Win AA12R	1,325	8,900
1 1/4	Rem 209P	SR7625	30.5	Windjammer	1,325	9,000
1 1/4	Fed 209A	SR4756	31.5	Win AA12R	1,325	9,700
1 1/4	Fed 209A	SR4756	31.5	Rem SP12	1,325	9,800
1 1/4	Win 209	SR4756	32.0	Fed 12S4	1,325	9,800
1 1/4	Win 209	SR7625	29.5	Win AA12	1,325	10,200
1 1/4	Fed 209A	SR7625	29.0	Fed 12S3	1,325	11,000
1 1/4	Rem 209P	PB	28.0	Fed 12S4	1,325	11,100
1 1/4	Fed 209A	Blue Dot	39.0	Win AA12F114	1,330	7,700
1 1/4	Win 209	Longshot	30.7	Rem R12L	1,330	7,700
1 1/4	Win 209	Longshot	29.7	Fed 12S4	1,330	8,000
1 1/4	CCI 209M	Blue Dot	37.5	Rem SP12	1,330	8,300
1 1/4	Win 209	Blue Dot	39.0	Fed 12S4	1,330	8,400
1 1/4	Fed 209A	Blue Dot	38.5	Fed 12S4	1,330	8,500
1 1/4	Rem 209P	800-X	29.0	CB3118-12AR	1,330	8,500
1 1/4	CCI 209M	Longshot	29.8	Rem R12L	1,330	8,700
1 1/4	Rem 209P	Longshot	29.1	Rem R12L	1,330	8,800
1 1/4	Win 209	Blue Dot	37.0	Rem SP12	1,330	9,000
1 1/4	CCI 209M	Blue Dot	37.5	Fed 12S4	1,330	9,000
1 1/4	CCI 209M	Longshot	29.2	Win AA12F114	1,330	9,000
1 1/4	Win 209	800-X	27.5	Rem SP12	1,330	9,100
1 1/4	Rem 209P	Longshot	28.3	Win AA12F114	1,330	9,200
1 1/4	Win 209	SR4756	33.0	Rem RP12	1,330	9,400
1 1/4	Fed 209A	Longshot	29.2	Rem R12L	1,330	9,400
1 1/4	Rem 209P	Longshot	28.4	Fed 12S4	1,330	9,400
1 1/4	Win 209	800-X	27.5	Win AA12	1,330	9,600
1 1/4	Rem 209P	SR7625	30.0	Fed 12S3	1,330	9,700
1 1/4	Win 209	800-X	27.5	Fed 12S3	1,330	9,700
1 1/4	Fed 209A	Longshot	28.4	Fed 12S4	1,330	9,800
1 1/4	Fed 209A	Longshot	28.2	Win AA12F114	1,330	9,900
1 1/4	Win 209	HS-6	34.5	Win AA12F114	1,330	10,100
1 1/4	CCI 209M	Longshot	29.5	Fed 12S3	1,330	10,200
1 1/4	Win 209	SR7625	30.0	Fed 12S3	1,330	10,300
1 1/4	Fed 209A	SR4756	31.5	Fed 12S4	1,330	10,400
1 1/4	Fed 209A	Blue Dot	35.0	Rem SP12	1,330	10,500
1 1/4	Rem 209P	PB	29.0	Rem SP12	1,330	10,500

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	SR7625	28.5	Rem SP12	1,330	11,000
1 1/4	Win 209	PB	28.0	CB3118-12AR	1,330	11,400
1 1/4	Fed 209A	SR7625	28.5	Win AA12	1,330	11,400
1 1/4	CCI 209	WSF	29.5	Fed 12S4	1,330	10,600
1 1/4	Win 209	WSF	31.5	Fed 12S4	1,330	9,500
1 1/4	Rem 209P	SR4756	35.0	Rem SP12	1,335	8,300
1 1/4	Rem 209P	800-X	29.0	Rem SP12	1,335	8,500
1 1/4	Rem 209P	800-X	28.5	Win AA12	1,335	9,000
1 1/4	Win 209	800-X	28.0	CB3118-12AR	1,335	9,300
1 1/4	Rem 209P	800-X	28.0	Fed 12S4	1,335	9,700
1 1/4	Fed 209A	800-X	27.5	CB3118-12AR	1,335	9,800
1 1/4	Fed 209A	800-X	27.0	Rem SP12	1,335	9,900
1 1/4	Fed 209A	800-X	27.5	Win AA12	1,335	10,100
1 1/4	Fed 209A	800-X	26.5	Fed 12S4	1,335	10,400
1 1/4	Win 209	Longshot	33.4	Win AA12F114	1,385	7,200
1 1/4	Win 209	Longshot	32.2	Rem R12L	1,385	8,700
1 1/4	Win 209	Longshot	31.3	Fed 12S4	1,385	9,300
1 1/4	CCI 209M	Longshot	31.5	Rem R12L	1,385	9,500
1 1/4	Rem 209P	Longshot	31.1	Rem R12L	1,385	9,700
1 1/4	CCI 209M	Longshot	30.6	Win AA12F114	1,385	9,900
1 1/4	Rem 209P	Longshot	30.3	Win AA12F114	1,385	10,100
1 1/4	Rem 209P	Longshot	30.1	Fed 12S4	1,385	10,300
1 1/4	Fed 209A	Longshot	30.7	Rem R12L	1,385	10,400
1 1/4	Fed 209A	Longshot	30.2	Fed 12S4	1,385	10,800
1 1/4	CCI 209M	Longshot	30.6	Fed 12S3	1,385	10,900
1 1/4	Fed 209A	Longshot	29.9	Win AA12F114	1,385	10,900
1 1/4	Win 209	Longshot	34.4	Win AA12F114	1,440	9,200
1 1/4	Win 209	Longshot	33.6	Rem R12L	1,440	9,700
1 1/4	CCI 209M	Longshot	33.2	Rem R12L	1,440	10,400
1 1/4	Rem 209P	Longshot	33.0	Rem R12L	1,440	10,500
1 1/4	Win 209	Longshot	32.9	Fed 12S4	1,440	10,600
1 1/4	Fed 209A	Blue Dot	40.5	Rem RP12	1,440	10,700
1 1/4	CCI 209M	Longshot	32.0	Win AA12F114	1,440	10,900
1 1/4	Rem 209P	Longshot	32.4	Win AA12F114	1,440	11,000
1 1/4	Rem 209P	Longshot	31.8	Fed 12S4	1,440	11,300
1 1/4	Fed 209A	Longshot	32.1	Rem R12L	1,440	11,400
1 1/4	Win 209	Longshot	35.0	Rem R12L	1,495	10,800
1 1/4	Win 209	Longshot	35.4	Win AA12F114	1,495	11,300
1 3/8	Fed 209A	PB	22.5	Rem SP12	1,160	10,900
1 3/8	Fed 209A	PB	22.5	Win AA12R	1,170	10,800
1 3/8	Fed 209A	SR7625	25.0	Rem SP12	1,180	11,200
1 3/8	Win 209	Longshot	28.7	Rem R12H	1,185	6,900
1 3/8	Rem 209P	Longshot	27.3	Rem R12H	1,185	7,700
1 3/8	Win 209	Longshot	26.5	Win AA12F114	1,185	8,400
1 3/8	CCI 209M	Longshot	25.0	Rem R12H	1,185	8,500
1 3/8	Fed 209A	Longshot	25.7	Rem R12H	1,185	8,600
1 3/8	Rem 209P	Longshot	25.2	Win AA12F114	1,185	8,700
1 3/8	Rem 209P	Longshot	24.8	Fed 12S4	1,185	8,900

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	CCI 209M	Longshot	24.0	Win AA12F114	1,185	9,100
1 3/8	Fed 209A	Longshot	24.6	Win AA12F114	1,185	9,300
1 3/8	CCI 209M	Longshot	23.8	Fed 12S4	1,185	9,500
1 3/8	Fed 209A	Longshot	24.6	Fed 12S4	1,185	9,500
1 3/8	Win 209	PB	23.5	Rem SP12	1,185	11,100
1 3/8	Win 209	PB	24.0	Win AA12R	1,200	11,000
1 3/8	Rem 209P	PB	24.5	Rem SP12	1,205	11,000
1 3/8	Fed 209A	SR7625	26.0	Win AA12R	1,210	11,000
1 3/8	Win 209	SR7625	26.5	Rem SP12	1,210	11,200
1 3/8	Win 209	SR7625	27.0	Win AA12R	1,225	11,000
1 3/8	Win 209	Blue Dot	37.5	Rem SP12	1,240	7,700
1 3/8	Rem 209P	Blue Dot	36.0	Rem RP12	1,240	7,800
1 3/8	Win 209	Longshot	29.6	Rem R12H	1,240	8,000
1 3/8	Fed 209A	Blue Dot	37.0	Rem SP12	1,240	8,100
1 3/8	CCI 209M	Blue Dot	37.5	Rem SP12	1,240	8,300
1 3/8	Win 209	Blue Dot	34.5	Rem RP12	1,240	8,600
1 3/8	CCI 209M	Blue Dot	35.0	Rem RP12	1,240	8,600
1 3/8	Rem 209P	Longshot	28.4	Rem R12H	1,240	8,600
1 3/8	Win 209	Longshot	28.1	Win AA12F114	1,240	9,100
1 3/8	CCI 209M	Longshot	26.6	Rem R12H	1,240	9,500
1 3/8	Fed 209A	Longshot	27.3	Rem R12H	1,240	9,500
1 3/8	Rem 209P	Longshot	26.8	Win AA12F114	1,240	9,700
1 3/8	Fed 209A	Blue Dot	34.0	Rem RP12	1,240	9,900
1 3/8	CCI 209M	Longshot	25.4	Fed 12S4	1,240	10,100
1 3/8	CCI 209M	Longshot	25.5	Win AA12F114	1,240	10,300
1 3/8	Fed 209A	Longshot	26.3	Win AA12F114	1,240	10,300
1 3/8	Rem 209P	Longshot	26.4	Fed 12S4	1,240	10,300
1 3/8	Fed 209A	Longshot	26.2	Fed 12S4	1,240	10,700
1 3/8	Fed 209A	800-X	25.0	Fed 12S4	1,240	10,900
1 3/8	Rem 209P	SR7625	28.0	Rem RP12	1,240	11,100
1 3/8	Rem 209P	PB	26.5	Win AA12R	1,255	11,000
1 3/8	Rem 209P	SR7625	28.5	Win AA12R	1,255	11,000
1 3/8	Rem 209P	800-X	27.0	Fed 12S4	1,260	9,700
1 3/8	Fed 209A	SR4756	30.0	Rem RP12	1,265	10,900
1 3/8	Win 209	800-X	26.0	Fed 12S4	1,270	11,000
1 3/8	Fed 209A	800-X	26.0	Win AA12R	1,280	11,000
1 3/8	Fed 209A	800-X	26.5	Rem SP12	1,285	11,000
1 3/8	Rem 209P	Blue Dot	39.0	Rem RP12	1,295	8,600
1 3/8	Fed 209A	Blue Dot	38.5	Rem RP12	1,295	8,700
1 3/8	CCI 209M	Blue Dot	36.5	Rem RP12	1,295	9,000
1 3/8	Win 209	Blue Dot	36.0	Rem RP12	1,295	9,200
1 3/8	CCI 209M	Blue Dot	38.0	Rem RP12	1,295	9,200
1 3/8	Win 209	Longshot	30.6	Rem R12H	1,295	9,200
1 3/8	Win 209	Blue Dot	38.5	Rem RP12	1,295	9,300
1 3/8	Rem 209P	Longshot	29.5	Rem R12H	1,295	9,600
1 3/8	Win 209	Longshot	29.8	Win AA12F114	1,295	9,900
1 3/8	Fed 209A	Longshot	29.0	Rem R12H	1,295	10,400
1 3/8	CCI 209M	Longshot	28.2	Rem R12H	1,295	10,500

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Blue Dot	35.5	Rem RP12	1,295	10,700
1 3/8	Rem 209P	Longshot	28.3	Win AA12F114	1,295	10,700
1 3/8	CCI 209M	Longshot	27.1	Fed 12S4	1,295	10,900
1 3/8	CCI 209M	Longshot	27.0	Win AA12F114	1,295	11,400
1 3/8	Fed 209A	Longshot	28.0	Win AA12F114	1,295	11,500
1 3/8	Rem 209P	Longshot	27.9	Fed 12S4	1,295	11,500
1 3/8	Fed 209A	SR4756	31.5	Win AA12R	1,305	11,000
1 3/8	Win 209	800-X	27.5	Win AA12R	1,310	11,000
1 3/8	Win 209	SR4756	33.0	Rem RP12	1,320	11,200
1 3/8	Win 209	800-X	29.0	Rem SP12	1,335	10,900
1 3/8	Win 209	SR4756	34.0	Win AA12R	1,335	11,000
1 3/8	Win 209	Longshot	31.6	Rem R12H	1,350	10,400
1 3/8	Rem 209P	Longshot	30.6	Rem R12H	1,350	10,500
1 3/8	Rem 209P	SR4756	34.5	Rem RP12	1,350	10,900
1 3/8	CCI 209M	Longshot	29.8	Rem R12H	1,350	11,500
1 3/8	Rem 209P	SR4756	35.0	Win AA12R	1,365	10,500
1 3/8	Rem 209P	800-X	30.5	Win AA12R	1,375	11,000
1 3/8	Rem 209P	800-X	32.0	Rem SP12	1,390	11,000
1 1/2	Win 209	SR7625	25.5	Rem RP12	1,140	11,000
1 1/2	Fed 209A	SR7625	25.0	Rem RP12	1,140	11,400
1 1/2	Fed 209A	Blue Dot	33.5	Rem RP12	1,150	8,300
1 1/2	Fed 209A	Herco	27.0	Rem SP12	1,150	8,600
1 1/2	Fed 209A	Herco	27.0	Fed 12S4	1,150	9,200
1 1/2	Rem 209P	Herco	26.5	Fed 12S4	1,150	9,900
1 1/2	CCI 209M	Herco	26.5	Fed 12S4	1,150	10,000
1 1/2	Fed 209A	Herco	25.5	Rem RP12	1,150	10,100
1 1/2	Fio 616	Herco	26.0	Fed 12S4	1,150	10,100
1 1/2	Win 209	Herco	26.5	Fed 12S4	1,150	10,100
1 1/2	Fed 209A	SR7625	25.5	Win AA12R	1,150	11,200
1 1/2	Win 209	SR7625	26.5	Win AA12R	1,160	11,000
1 1/2	Fed 209A	SR4756	27.5	Rem RP12	1,160	11,000
1 1/2	Rem 209P	SR4756	30.0	Win AA12R	1,165	9,000
1 1/2	Rem 209P	SR7625	28.0	Win AA12R	1,170	11,000
1 1/2	Win 209	800-X	25.0	Fed 12S4	1,170	11,000
1 1/2	Win 209	SR4756	28.5	Rem RP12	1,175	11,000
1 1/2	Fed 209A	SR4756	28.0	Win AA12R	1,175	11,100
1 1/2	Fed 209A	800-X	24.5	Fed 12S4	1,180	11,200
1 1/2	Rem 209P	SR7625	27.5	Rem RP12	1,185	11,100
1 1/2	Rem 209P	800-X	26.0	Fed 12S4	1,190	10,400
1 1/2	CCI 209M	Blue Dot	36.0	Rem RP12	1,205	8,500
1 1/2	Win 209	Blue Dot	37.0	Rem RP12	1,205	8,500
1 1/2	Fed 209A	Blue Dot	36.0	Rem RP12	1,205	8,800
1 1/2	Win 209	Longshot	27.2	Win AA12R	1,205	9,000
1 1/2	Fed 209A	Blue Dot	38.0	Rem RP12	1,205	9,900
1 1/2	Fed 209A	Longshot	25.6	Win AA12R	1,205	10,200
1 1/2	Win 209	Longshot	26.8	Fed 12S4	1,205	10,200
1 1/2	Win 209	SR4756	30.0	Win AA12R	1,205	10,800
1 1/2	Fed 209A	Longshot	25.5	Fed 12S4	1,205	11,400

Hull #18 (continued)
12 Gauge 2 ¾"
Hull I.D. Page 90
Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/2	Fed 209A	800-X	26.0	Win AA12R	1,215	11,200
1 1/2	Fed 209A	800-X	26.5	Rem SP12	1,220	11,000
1 1/2	Rem 209P	SR4756	30.5	Rem RP12	1,220	11,100
1 1/2	Win 209	800-X	27.0	Rem SP12	1,225	11,100
1 1/2	Win 209	800-X	27.0	Win AA12R	1,245	11,000
1 1/2	Win 209	Blue Dot	38.0	Rem RP12	1,260	9,100
1 1/2	CCI 209M	Blue Dot	38.0	Rem RP12	1,260	10,000
1 1/2	Win 209	Longshot	29.1	Win AA12R	1,260	10,200
1 1/2	Win 209	HS-7	37.0	Win AA12R	1,260	10,900
1 1/2	Win 209	Longshot	28.0	Fed 12S4	1,260	11,400
1 1/2	Fed 209A	Longshot	27.2	Win AA12R	1,260	11,500
1 1/2	Rem 209P	800-X	28.5	Rem RP12	1,265	11,000
1 1/2	Win 209	Longshot	31.0	Win AA12R	1,315	11,500
1 5/8	Rem 209P	Herco	26.5	Rem SP12	1,115	9,500
1 5/8	Win 209	Herco	26.5	Rem SP12	1,115	9,800
1 5/8	CCI 209M	Herco	26.5	Rem SP12	1,115	10,000
1 5/8	Fed 209A	Herco	26.5	Rem SP12	1,115	10,000
1 5/8	Fio 616	Herco	26.0	Rem SP12	1,115	10,300
24 Grams	Rem 209P	PB	21.0*	Win AA12SL	1,140	3,900
24 Grams	Rem 209P	700-X	16.0*	CB1100-12	1,140	4,000
24 Grams	Rem 209P	700-X	16.5*	CB2100-12	1,140	4,000
24 Grams	Fed 209A	SR7625	24.0	Win AA12SL	1,145	3,400
24 Grams	Fed 209A	SR7625	23.5	Fed 12S0	1,145	3,800
24 Grams	Rem 209P	PB	21.0*	Rem TGT12	1,145	3,900
24 Grams	Fed 209A	PB	20.0*	Rem TGT12	1,145	4,700
24 Grams	Fed 209A	700-X	15.5*	CB1100-12	1,145	4,800
24 Grams	Fed 209A	700-X	15.5*	Rem TGT12	1,145	5,000
24 Grams	Win 209	700-X	15.5*	Fed 12S0	1,145	5,400
24 Grams	Fed 209A	SR7625	23.5*	Win AA12SL	1,150	3,800
24 Grams	Rem 209P	700-X	16.0*	Rem TGT12	1,150	4,200
24 Grams	Rem 209P	PB	21.0*	CB2118-12	1,150	4,300
24 Grams	Rem 209P	700-X	16.0*	Win AA12SL	1,150	4,700
24 Grams	Fed 209A	PB	20.0*	CB2118-12	1,150	4,900
24 Grams	Win 209	700-X	15.5*	Win AA12SL	1,150	5,100
24 Grams	Win 209	700-X	15.5*	Rem TGT12	1,150	5,200
24 Grams	Fed 209A	SR7625	24.0	Rem TGT12	1,155	3,700
24 Grams	Win 209	700-X	16.0*	CB1100-12	1,155	4,900
24 Grams	Fed 209A	PB	20.0*	Win AA12SL	1,155	5,000
24 Grams	Fed 209A	PB	20.0*	Fed 12S3	1,155	5,200
24 Grams	Fed 209A	700-X	15.5*	Win AA12SL	1,155	5,300
24 Grams	Rem 209P	PB	21.0*	Fed 12S3	1,160	4,700
24 Grams	Rem 209P	700-X	16.5*	Fed 12S0	1,160	4,800
24 Grams	Fed 209A	700-X	16.0*	CB2100-12	1,160	5,300
24 Grams	Win 209	700-X	16.0*	CB2100-12	1,160	5,300
24 Grams	Fed 209A	700-X	16.0*	Fed 12S0	1,160	5,500
24 Grams	Fed 209A	SR7625	24.5*	Win AA12SL	1,190	4,200
24 Grams	Fed 209A	PB	21.0*	CB2118-12	1,190	5,400

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

Federal One-Piece Plastic Shell Target and Gold Medal Type

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
24 Grams	Fed 209A	SR7625	25.0	Rem TGT12	1,195	4,000
24 Grams	Rem 209P	PB	22.5*	Win AA12SL	1,195	4,400
24 Grams	Rem 209P	700-X	18.0*	CB2100-12	1,195	4,500
24 Grams	Rem 209P	700-X	17.0*	Rem TGT12	1,195	4,800
24 Grams	Fed 209A	PB	21.0	Win AA12SL	1,195	5,300
24 Grams	Fed 209A	700-X	16.5*	CB1100-12	1,195	5,500
24 Grams	Fed 209A	PB	21.0*	Fed 12S3	1,195	5,600
24 Grams	Fed 209A	700-X	16.5*	Rem TGT12	1,195	5,700
24 Grams	Win 209	700-X	16.5*	Rem TGT12	1,195	5,800
24 Grams	Win 209	700-X	16.5*	Fed 12S0	1,195	6,100
24 Grams	Rem 209P	PB	22.5*	Rem TGT12	1,200	4,500
24 Grams	Win 209	700-X	16.5*	Win AA12SL	1,200	5,700
24 Grams	Fed 209A	SR7625	25.5	Win AA12SL	1,205	3,900
24 Grams	Fed 209A	SR7625	25.0	Fed 12S0	1,205	4,300
24 Grams	Rem 209P	700-X	17.5*	CB1100-12	1,205	4,600
24 Grams	Rem 209P	PB	22.5*	CB2118-12	1,205	4,700
24 Grams	Rem 209P	PB	22.0*	Fed 12S3	1,205	5,100
24 Grams	Rem 209P	700-X	17.5*	Fed 12S0	1,205	5,300
24 Grams	Fed 209A	PB	21.5*	Rem TGT12	1,205	5,300
24 Grams	Rem 209P	700-X	17.0*	Win AA12SL	1,205	5,400
24 Grams	Fed 209A	700-X	16.5*	Win AA12SL	1,205	5,900
24 Grams	Fed 209A	700-X	17.0*	Fed 12S0	1,205	6,200
24 Grams	Win 209	700-X	17.0*	CB1100-12	1,210	5,500
24 Grams	Win 209	700-X	17.0*	CB2100-12	1,210	5,900
24 Grams	Fed 209A	700-X	17.0*	CB2100-12	1,210	6,000
24 Grams	Fed 209A	PB	22.5*	CB2118-12	1,230	6,000
24 Grams	Fed 209A	700-X	17.5*	Rem TGT12	1,245	6,200
24 Grams	Win 209	700-X	17.5*	Rem TGT12	1,245	6,400
24 Grams	Fed 209A	SR7625	26.5	Win AA12SL	1,250	4,300
24 Grams	Rem 209P	700-X	19.0*	CB1100-12	1,250	5,300
24 Grams	Rem 209P	PB	23.0*	Fed 12S3	1,250	5,600
24 Grams	Rem 209P	700-X	18.5*	Rem TGT12	1,250	5,700
24 Grams	Rem 209P	700-X	18.0*	Win AA12SL	1,250	5,900
24 Grams	Fed 209A	PB	22.5*	Win AA12SL	1,250	5,900
24 Grams	Rem 209P	700-X	18.5*	Fed 12S0	1,250	6,000
24 Grams	Fed 209A	700-X	17.5*	CB1100-12	1,250	6,200
24 Grams	Win 209	700-X	17.5*	Win AA12SL	1,250	6,400
24 Grams	Win 209	700-X	17.5*	Fed 12S0	1,250	6,700
24 Grams	Fed 209A	SR7625	26.5	Rem TGT12	1,255	4,600
24 Grams	Fed 209A	SR7625	25.5	Win AA12SL	1,255	4,800
24 Grams	Rem 209P	PB	24.0*	Win AA12SL	1,255	5,100
24 Grams	Fed 209A	700-X	17.5*	Win AA12SL	1,255	6,600
24 Grams	Fed 209A	700-X	18.0*	Fed 12S0	1,255	6,800
24 Grams	Win 209	700-X	18.0*	CB1100-12	1,260	6,200
24 Grams	Fed 209A	PB	22.5*	Fed 12S3	1,260	6,300
24 Grams	Win 209	700-X	18.0*	CB2100-12	1,260	6,500
24 Grams	Fed 209A	700-X	18.0*	CB2100-12	1,260	6,600

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

Hull #18 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target and Gold Medal Type

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
24 Grams	Fed 209A	SR7625	26.5	Fed 12S0	1,265	4,900
24 Grams	Rem 209P	700-X	19.5*	CB2100-12	1,265	5,200
24 Grams	Rem 209P	PB	24.0*	Rem TGT12	1,265	5,200
24 Grams	Rem 209P	PB	24.0*	CB2118-12	1,265	5,300
24 Grams	Fed 209A	PB	23.0*	Rem TGT12	1,265	6,000
24 Grams	Fed 209A	SR7625	28.0	Fed 12S0	1,320	5,400
24 Grams	Fed 209A	SR7625	27.0	Win AA12SL	1,320	5,600
24 Grams	Rem 209P	PB	25.5*	Win AA12SL	1,320	5,700
24 Grams	Rem 209P	700-X	21.0*	CB1100-12	1,320	5,800
24 Grams	Fed 209A	PB	24.0*	Fed 12S3	1,320	7,000
24 Grams	Win 209	700-X	19.0*	Win AA12SL	1,320	7,500
24 Grams	Fed 209A	SR7625	28.5	Win AA12SL	1,325	5,000
24 Grams	Rem 209P	700-X	20.5*	Win AA12SL	1,325	6,600
24 Grams	Fed 209A	PB	24.5*	Win AA12SL	1,325	6,600
24 Grams	Fed 209A	PB	24.5*	Rem TGT12	1,325	6,700
24 Grams	Fed 209A	700-X	19.5*	Rem TGT12	1,325	7,100
24 Grams	Fed 209A	700-X	19.0*	Win AA12SL	1,325	7,800
24 Grams	Fed 209A	700-X	19.5*	Fed 12S0	1,325	7,800
24 Grams	Rem 209P	PB	25.5*	Rem TGT12	1,330	6,000
24 Grams	Rem 209P	PB	25.5*	CB2118-12	1,330	6,100
24 Grams	Rem 209P	700-X	21.0*	CB2100-12	1,330	6,300
24 Grams	Rem 209P	700-X	21.0*	Rem TGT12	1,330	6,500
24 Grams	Rem 209P	PB	25.0*	Fed 12S3	1,330	6,600
24 Grams	Fed 209A	PB	24.5*	CB2118-12	1,330	6,900
24 Grams	Fed 209A	700-X	19.5*	CB2100-12	1,330	7,500
24 Grams	Win 209	700-X	19.5*	Fed 12S0	1,330	7,800
24 Grams	Fed 209A	SR7625	28.5	Rem TGT12	1,335	5,400
24 Grams	Win 209	700-X	19.5*	CB1100-12	1,335	7,300
24 Grams	Fed 209A	700-X	19.5*	CB1100-12	1,335	7,400
24 Grams	Win 209	700-X	19.5*	CB2100-12	1,335	7,400
24 Grams	Win 209	700-X	19.5*	Rem TGT12	1,335	7,800
24 Grams	Rem 209P	700-X	20.5*	Fed 12S0	1,340	7,300
24 Grams	Fed 209A	American Select	20.5	Fed 12S0	1,345	7,900
24 Grams	Fed 209A	American Select	21.0	CB1100-12	1,345	8,000
24 Grams	Fed 209A	American Select	21.0	Rem TGT12	1,345	8,100
24 Grams	Fed 209A	American Select	21.5	Win AA12L	1,345	8,100
24 Grams	Fed 209A	Red Dot	19.5	Purple PC	1,345	8,700
24 Grams	Fed 209A	Red Dot	20.0	CB1100-12	1,345	8,700
24 Grams	Fed 209A	Red Dot	20.0	Fed 12S0	1,345	8,900
24 Grams	Fed 209A	Red Dot	20.5	Rem TGT12	1,345	8,900
24 Grams	Fed 209A	Red Dot	20.0	Win AA12L	1,345	9,000
28 Grams	Fed 209A	Unique	27.5	Fed 12S0	1,345	7,400
28 Grams	Fed 209A	Green Dot	25.0	Purple PC	1,345	8,200
28 Grams	Fed 209A	Green Dot	24.5	Win AA12SL	1,345	8,400
28 Grams	Fed 209A	Green Dot	25.0	Rem Fig 8	1,345	8,400
28 Grams	Fed 209A	Red Dot	23.0	Purple PC	1,345	8,800

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)
28 Gram Loads = 432.1 Grains (1 oz. Load = 437.5 Grains)

12 Gauge 2 ¾" Lead Shot Load Data

Federal One-Piece Plastic Shell Target and Gold Medal Type

(continued) **Hull #18**

12 Gauge 2 ¾"

Hull I.D. Page 90
Reference Notes Page 109

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
28 Grams	Fed 209A	Green Dot	24.5	Fed 12SO	1,345	9,100
28 Grams	Fed 209A	Red Dot	22.5	Rem Fig 8	1,345	9,500
28 Grams	Fed 209A	Red Dot	22.5	Win AA12SL	1,345	9,600
28 Grams	Fed 209A	Red Dot	23.0	Fed 12SO	1,345	9,900

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)
28 Gram Loads = 432.1 Grains (1 oz. Load = 437.5 Grains)

12 Gauge 2 ¾" Lead Shot Load Data

Federal Hi-Power Plastic Shell (With 9/16" Paper Basewad)

Hull #19

12 Gauge 2 ¾"

Hull I.D. Page 90
Reference Notes Page 109

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	Green Dot	22.5	Rem R12L	1,290	7,400
1	Fed 209A	Green Dot	23.0	Fed 12S3	1,290	7,500
1	Fed 209A	Red Dot	20.5	Rem R12L	1,290	8,500
1	Fed 209A	Red Dot	21.0	Fed 12S3	1,290	9,400
1 1/8	Rem 209P	Green Dot	21.0	Fed 12S3	1,145	6,700
1 1/8	Fed 209A	Green Dot	19.5	Hor Versalite	1,145	7,100
1 1/8	Fed 209A	Green Dot	20.0	Fed 12S3	1,145	7,200
1 1/8	Fed 209A	Red Dot	18.5	Fed 12S3	1,145	7,300
1 1/8	CCI 209M	Green Dot	20.0	Fed 12S3	1,145	7,600
1 1/8	Win 209	Green Dot	20.0	Fed 12S3	1,145	8,200
1 1/8	Fed 209A	Red Dot	18.5	Hor Versalite	1,145	8,300
1 1/8	Rem 209P	Red Dot	18.5	Fed 12S3	1,145	8,400
1 1/8	CCI 209M	Red Dot	18.5	Fed 12S3	1,145	8,600
1 1/8	Fed 209A	Green Dot	19.0	Rem RXP12	1,145	8,700
1 1/8	Fed 209A	Red Dot	18.5	Rem RXP12	1,145	8,700
1 1/8	Fed 209A	Green Dot	18.5	Win AA12	1,145	9,100
1 1/8	Win 209	Red Dot	18.5	Fed 12S3	1,145	9,100
1 1/8	Fed 209A	Red Dot	18.5	Win AA12	1,145	9,600
1 1/8	Rem 209P	Green Dot	22.0	Fed 12S3	1,200	7,600
1 1/8	Fed 209A	Unique	21.0	Win AA12	1,200	7,700
1 1/8	Fed 209A	Unique	23.0	Fed 12S3	1,200	7,700
1 1/8	CCI 209M	Unique	24.0	Fed 12S3	1,200	7,700
1 1/8	Fed 209A	Green Dot	21.0	Fed 12S3	1,200	8,000
1 1/8	Fed 209A	Unique	22.5	Hor Versalite	1,200	8,000
1 1/8	Fed 209A	Unique	22.0	Rem RXP12	1,200	8,100
1 1/8	Win 209	Unique	23.5	Fed 12S3	1,200	8,100
1 1/8	Fed 209A	Universal	24.0	Fed 12S3	1,200	8,200
1 1/8	Win 209	Universal	24.0	Win AA12	1,200	8,300
1 1/8	CCI 209M	Green Dot	21.5	Fed 12S3	1,200	8,600
1 1/8	Fed 209A	Green Dot	20.0	Hor Versalite	1,200	8,800
1 1/8	Win 209	Green Dot	21.5	Fed 12S3	1,200	8,900

Hull #19 (continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal Hi-Power Plastic Shell (With 9/16" Paper Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Red Dot	19.5	Hor Versalite	1,200	9,000
1 1/8	Fed 209A	Green Dot	20.5	Rem RXP12	1,200	9,100
1 1/8	Rem 209P	Red Dot	20.0	Fed 12S3	1,200	9,200
1 1/8	Fed 209A	Green Dot	20.0	Win AA12	1,200	9,300
1 1/8	Fed 209A	Red Dot	19.0	Fed 12S3	1,200	9,300
1 1/8	Fed 209A	Red Dot	19.5	Rem RXP12	1,200	9,300
1 1/8	CCI 209M	Red Dot	20.0	Fed 12S3	1,200	9,300
1 1/8	Fed 209A	Green Dot	20.5	Fed 12C1	1,200	9,400
1 1/8	Win 209	Red Dot	19.5	Fed 12S3	1,200	9,500
1 1/8	Fed 209A	Red Dot	19.0	Win AA12	1,200	9,800
1 1/8	Fed 209A	Unique	23.0	Rem RXP12	1,255	8,100
1 1/8	Fed 209A	Unique	24.0	Fed 12S3	1,255	8,100
1 1/8	Fed 209A	Unique	23.5	Hor Versalite	1,255	8,200
1 1/8	CCI 209M	Unique	25.5	Fed 12S3	1,255	8,400
1 1/8	Rem 209P	Green Dot	23.0	Fed 12S3	1,255	8,500
1 1/8	Fed 209A	Green Dot	23.5	Hor Versalite	1,255	8,600
1 1/8	Fed 209A	Unique	23.0	Win AA12	1,255	8,600
1 1/8	Win 209	Universal	25.0	Win AA12	1,255	8,700
1 1/8	Fed 209A	Green Dot	22.0	Fed 12S3	1,255	9,000
1 1/8	Fed 209A	Universal	25.0	Fed 12S3	1,255	9,000
1 1/8	Win 209	Unique	25.0	Fed 12S3	1,255	9,100
1 1/8	Win 209	Green Dot	23.0	Fed 12S3	1,255	9,400
1 1/8	CCI 209M	Green Dot	22.0	Fed 12S3	1,255	9,600
1 1/8	Fed 209A	Red Dot	20.5	Hor Versalite	1,255	9,700
1 1/8	Fed 209A	Red Dot	21.0	Rem RXP12	1,255	9,800
1 1/8	Fed 209A	Green Dot	22.5	Rem RXP12	1,255	10,000
1 1/8	Fed 209A	Green Dot	22.0	Fed 12C1	1,255	10,100
1 1/8	CCI 209M	Red Dot	21.5	Fed 12S3	1,255	10,100
1 1/8	Fed 209A	Red Dot	21.5	Fed 12S3	1,255	10,100
1 1/8	Fed 209A	Red Dot	21.0	Fed 12C1	1,255	10,200
1 1/8	Fed 209A	Green Dot	22.0	Win AA12	1,255	10,300
1 1/8	Rem 209P	Red Dot	22.0	Fed 12S3	1,255	10,300
1 1/8	Win 209	Red Dot	21.5	Fed 12S3	1,255	10,700
1 1/8	Fed 209A	Universal	26.5	Fed 12S3	1,310	9,400
1 1/8	Win 209	Universal	26.5	Win AA12	1,310	9,700
1 1/4	CCI 209M	Universal	25.5	Rem SP12	1,220	7,900
1 1/4	Fed 209A	Unique	23.0	Rem RXP12	1,220	8,300
1 1/4	Fed 209A	Unique	23.5	Hor Versalite	1,220	8,800
1 1/4	Win 209	Universal	25.2	Fed 12S4	1,220	8,800
1 1/4	Fed 209A	Unique	23.0	Fed 12C1	1,220	9,000
1 1/4	Rem 209P	Unique	25.5	Fed 12S4	1,220	9,000
1 1/4	Fed 209A	Unique	23.0	Win AA12F114	1,220	9,400
1 1/4	Win 209	Universal	25.5	Win AA12F114	1,220	9,400
1 1/4	Fed 209A	Green Dot	21.5	Win AA12	1,220	9,500
1 1/4	Fed 209A	Unique	23.0	Fed 12S4	1,220	9,500
1 1/4	Win 209	Unique	25.0	Fed 12S4	1,220	9,500
1 1/4	Fed 209A	Green Dot	22.0	Rem RXP12	1,220	9,600
1 1/4	Fed 209A	Unique	23.0	Win AA12	1,220	9,600

12

12 Gauge 2 ¾"
Lead Shot Load Data

Federal Hi-Power Plastic Shell (With 9/16" Paper Basewad)

(continued) **Hull #19**

12 Gauge 2 ¾"

Hull I.D. Page 90
Reference Notes Page 109

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Green Dot	23.0	Hor Versalite	1,220	9,700
1 1/4	Fed 209A	Green Dot	23.0	Fed 12S4	1,220	9,800
1 1/4	Fed 209A	Green Dot	23.0	Win AA12F114	1,220	9,900
1 1/4	CCI 209M	Unique	25.0	Fed 12S4	1,220	10,000
1 1/4	Fed 209A	Universal	24.0	Fed 12S4	1,220	10,300
1 1/4	Fed 209A	Green Dot	22.0	Rem R12H	1,220	10,500
1 1/4	Win 209	Blue Dot	38.0	Fed 12S4	1,330	8,600
1 1/4	Fed 209A	Herco	29.5	Win WAA12F114	1,330	9,400
1 1/4	CCI 209M	Herco	30.0	Fed 12S4	1,330	9,500
1 1/4	CCI 209M	Blue Dot	38.0	Fed 12S4	1,330	9,800
1 1/4	Fed 209A	Herco	28.5	Fed 12C1	1,330	9,800
1 1/4	Fed 209A	Herco	28.5	Rem SP12	1,330	9,900
1 1/4	Fed 209A	Herco	29.0	Fed 12S4	1,330	10,200
1 1/4	Win 209	Herco	30.0	Fed 12S4	1,330	10,200
1 1/4	Fed 209A	Unique	25.5	Fed 12C1	1,330	10,200
1 1/4	Fed 209A	Unique	25.5	Rem SP12	1,330	10,200
1 1/4	Fed 209A	Herco	29.0	Win AA12	1,330	10,500
1 3/8	Rem 209P	Blue Dot	39.0	Rem RP12	1,295	8,400
1 3/8	Fed 209A	Blue Dot	37.5	Win AA12	1,295	8,500
1 3/8	CCI 209M	Blue Dot	39.0	Rem RP12	1,295	8,500
1 3/8	Fed 209A	Blue Dot	38.5	Rem RP12	1,295	8,600
1 3/8	Fed 209A	Blue Dot	38.0	Rem SP12	1,295	9,000
1 3/8	Win 209	Blue Dot	39.0	Rem RP12	1,295	9,400
1 3/8	CCI 209M	Blue Dot	39.5	Rem RP12	1,350	9,600
1 3/8	Win 209	Blue Dot	40.0	Rem RP12	1,350	9,600
1 3/8	Fed 209A	Blue Dot	39.5	Rem RP12	1,350	9,700
1 1/2	Fed 209A	Blue Dot	33.5	Rem RP12	1,150	8,400
1 1/2	Fed 209A	Herco	26.5	Rem SP12	1,150	8,900
1 1/2	Fed 209A	Blue Dot	34.5	Rem RP12	1,205	8,500
1 1/2	Win 209	Blue Dot	34.5	Rem RP12	1,205	8,600
1 1/2	CCI 209M	Blue Dot	35.0	Rem RP12	1,205	8,700
1 1/2	Fed 209A	Blue Dot	36.0	Rem RP12	1,260	9,500
1 1/2	CCI 209M	Blue Dot	37.0	Rem RP12	1,260	9,500
1 1/2	Fed 209A	Blue Dot	37.0	Rem SP12	1,260	9,600
1 1/2	Win 209	Blue Dot	37.0	Rem RP12	1,260	9,900

Hull #20

12 Gauge 2 ¾"

Hull I.D. Page 91

Reference Notes Page 110

Federal Paper Target Shell (With Rolled Paper Basewad)

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Fed 209A	Titewad	19.1	Win AA12SL	1,250	6,900
7/8	Fed 209A	Clays	18.4	Win AA12SL	1,250	7,200
7/8	Rem 209P	Titewad	18.4	G/BP SF12	1,250	8,000
7/8	Win 209	International	23.1	Win AA12	1,325	7,400
7/8	Win 209	Titewad	21.0	Win AA12SL	1,325	7,600
7/8	Win 209	Clays	21.2	Win AA12	1,325	7,600
7/8	CCI 209M	International	22.4	Fed 12S3	1,325	8,000
7/8	Fed 209A	Titewad	20.9	Win AA12SL	1,325	8,100
7/8	Rem 209P	Clays	20.9	Rem Fig 8	1,325	8,100
7/8	Fed 209A	International	22.0	Fed 12S3	1,325	8,100
7/8	Fed 209A	Clays	20.2	Win AA12SL	1,325	8,800
7/8	Rem 209P	Titewad	20.0	G/BP SF12	1,325	9,400
7/8	Win 209	International	24.6	Win AA12	1,400	8,100
7/8	Win 209	Titewad	22.9	Win AA12SL	1,400	8,900
7/8	Rem 209P	Clays	22.5	Rem Fig 8	1,400	9,300
7/8	Win 209	Clays	22.6	Win AA12	1,400	9,300
7/8	CCI 209M	International	24.0	Fed 12S3	1,400	9,300
7/8	Fed 209A	Titewad	22.7	Win AA12SL	1,400	9,400
7/8	Fed 209A	International	23.5	Fed 12S3	1,400	9,500
7/8	Fed 209A	Clays	21.9	Win AA12SL	1,400	10,300
7/8	Rem 209P	Titewad	21.5	G/BP SF12	1,400	11,100
7/8	Win 209	Titewad	24.8	Win AA12SL	1,475	10,200
7/8	Fed 209A	Titewad	24.6	Win AA12SL	1,475	10,600
7/8	CCI 209M	International	25.7	Fed 12S3	1,475	10,600
7/8	Win 209	Clays	24.0	Win AA12	1,475	11,100
7/8	Fed 209A	International	25.0	Fed 12S3	1,475	11,300
1	Win 209	Clays	18.0	Windjammer	1,180	5,800
1	Rem 209P	Clays	18.5	Rem TGT12	1,180	6,000
1	Win 209	Clays	17.5	Win AA12SL	1,180	6,400
1	CCI 209SC	Titewad	17.2	Windjammer	1,180	6,900
1	Rem 209P	Titewad	17.9	Rem Fig 8	1,180	7,000
1	Fed 209A	Clays	18.0	Fed 12S0	1,180	7,100
1	Win 209	Titewad	17.4	Win AA12	1,180	7,200
1	Fed 209A	Titewad	18.1	Fed 12S3	1,180	7,500
1	Fed 209A	e3	17.5	Fed 12S0	1,200	8,535
1	Rem 209P	Clays	20.0	Rem TGT12	1,235	6,400
1	CCI 209M	International	21.6	Fed 12C1	1,235	7,200
1	Win 209	Clays	19.5	Windjammer	1,235	7,300
1	Rem 209P	Titewad	19.2	Rem Fig 8	1,235	8,000
1	Fed 209A	International	20.7	Fed 12C1	1,235	8,100
1	CCI 209SC	Titewad	19.1	Windjammer	1,235	8,300
1	Win 209	Clays	19.0	Win AA12SL	1,235	8,300
1	Fed 209A	Titewad	19.5	Fed 12S3	1,235	8,400
1	Fed 209A	Clays	19.5	Fed 12S0	1,235	8,700
1	Win 209	Titewad	18.7	Win AA12	1,235	8,900
1	Fed 209A	e3	18.5	Fed 12S0	1,255	10,065
1	Rem 209P	Clays	22.0	Rem TGT12	1,290	7,700

12

12 Gauge 2 ¾"
Lead Shot Load Data

Federal Paper Target Shell (With Rolled Paper Basewad)

(Continued) **Hull #20**

12 Gauge 2 ¾"

Hull I.D. Page 91
Reference Notes Page 110

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	International	23.2	Fed 12C1	1,290	7,700
1	CCI 209M	Green Dot	23.0	Fed 12S3	1,290	7,800
1	Rem 209P	International	23.2	Fed 12C1	1,290	7,900
1	CCI 209M	International	22.8	Fed 12C1	1,290	8,500
1	CCI 209M	Red Dot	21.0	Fed 12S3	1,290	8,700
1	Fed 209A	Green Dot	21.5	Rem R12L	1,290	8,800
1	Win 209	Clays	20.5	Windjammer	1,290	8,800
1	CCI 209SC	Titewad	20.1	Windjammer	1,290	8,900
1	Fed 209A	Red Dot	20.5	Fed 12S3	1,290	9,000
1	Rem 209P	Titewad	20.5	Rem Fig 8	1,290	9,000
1	Fed 209A	Green Dot	22.5	Fed 12SO	1,290	9,200
1	Fed 209A	Red Dot	20.0	Rem R12L	1,290	9,300
1	Fed 209A	Green Dot	23.5	Fed 12S3	1,290	9,400
1	Fed 209A	International	22.0	Fed 12C1	1,290	9,400
1	Fed 209A	Titewad	20.6	Fed 12S3	1,290	9,700
1	Win 209	Titewad	20.0	Win AA12	1,290	9,800
1	Fed 209A	Red Dot	20.5	Fed 12SO	1,290	10,400
1	Fed 209A	e3	19.5	Fed 12SO	1,290	10,630
1	Win 209	Clays	21.0	Win AA12SL	1,290	10,800
1	Fed 209A	Clays	21.0	Fed 12SO	1,290	10,900
1	Win 209	International	24.4	Fed 12C1	1,345	9,100
1	Rem 209P	International	24.2	Fed 12C1	1,345	9,300
1	CCI 209M	International	24.0	Fed 12C1	1,345	9,700
1	CCI 209SC	Titewad	21.5	Windjammer	1,345	10,200
1	Rem 209P	Titewad	21.9	Rem Fig 8	1,345	10,300
1	Fed 209A	International	23.2	Fed 12C1	1,345	10,600
1	Win 209	Titewad	21.3	Win AA12	1,345	10,900
1	Fed 209A	Titewad	22.0	Fed 12S3	1,345	11,100
1 1/8	Ched 209	Clays	16.8	Rem Fig 8	1,090	5,800
1 1/8	Rem 209P	Clays	18.0	Rem Fig 8	1,090	5,900
1 1/8	Ched 209	Clays	17.5	Windjammer	1,090	6,000
1 1/8	Win 209	International	20.0	Win AA12	1,090	6,400
1 1/8	Ched 209	International	18.5	Windjammer	1,090	6,700
1 1/8	Ched 209	International	18.1	Fed 12C1	1,090	6,900
1 1/8	Ched 209	International	17.9	Rem Fig 8	1,090	6,900
1 1/8	Fed 209A	International	18.8	Fed 12S4	1,090	7,000
1 1/8	Fed 209A	Clays	17.0	Fed 12S3	1,090	7,400
1 1/8	Win 209	Titewad	16.4	Win AA12	1,090	7,500
1 1/8	Fed 209A	Clays	17.3	Fed 12C1	1,090	7,500
1 1/8	Fio 616	Clays	16.8	Hor Versalite	1,090	7,500
1 1/8	Win 209	Clays	17.0	Win AA12	1,090	7,600
1 1/8	Fed 209A	Titewad	16.6	Fed 12C1	1,090	7,700
1 1/8	Ched 209	Titewad	15.9	Windjammer	1,090	8,000
1 1/8	Fio 616	Titewad	16.0	Hor Versalite	1,090	8,000
1 1/8	Ched 209	Titewad	15.9	Fed 12S3	1,090	8,300
1 1/8	Ched 209	Titewad	16.2	Rem Fig 8	1,090	8,300
1 1/8	CCI 209M	Titewad	16.3	Fed 12C1	1,090	8,600
1 1/8	Fed 209A	Titewad	16.2	Fed 12S4	1,090	9,000

Hull #20 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 91

Reference Notes Page 110

Federal Paper Target Shell (With Rolled Paper Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	CCI 209SC	Titewad	15.3	Win AA12F114	1,090	9,600
1 1/8	Fed 209A	Green Dot	20.5	Windjammer	1,145	6,600
1 1/8	Fed 209A	Green Dot	19.5	Hor Versalite	1,145	6,900
1 1/8	Rem 209P	Green Dot	20.0	Fed 12C1	1,145	7,000
1 1/8	Rem 209P	Clays	18.5	Rem Fig 8	1,145	7,000
1 1/8	CCI 209M	International	21.2	Red PC	1,145	7,000
1 1/8	Win 209	International	20.6	Win AA12	1,145	7,000
1 1/8	Fed 209A	American Select	19.5	Windjammer	1,145	7,100
1 1/8	Fed 209A	Green Dot	19.5	Fed 12S3	1,145	7,400
1 1/8	CCI 209M	Green Dot	20.0	Fed 12C1	1,145	7,400
1 1/8	Win 209	Green Dot	19.5	Fed 12C1	1,145	7,500
1 1/8	Fed 209A	International	19.5	Fed 12S4	1,145	7,500
1 1/8	Fed 209A	American Select	19.0	Claybuster	1,145	7,600
1 1/8	Fed 209A	American Select	19.0	Rem Fig 8	1,145	7,600
1 1/8	Fed 209A	Green Dot	20.0	Red PC	1,145	7,600
1 1/8	Win 209	Clays	19.3	Fed 12C1	1,145	7,600
1 1/8	Ched 209	Clays	18.7	Windjammer	1,145	7,800
1 1/8	Ched 209	International	19.7	Windjammer	1,145	7,800
1 1/8	Fed 209A	American Select	19.0	Hor Versalite	1,145	7,900
1 1/8	Fed 209A	Green Dot	20.0	Fio FTW1	1,145	7,900
1 1/8	CCI 209M	Red Dot	18.5	Fed 12C1	1,145	7,900
1 1/8	Fed 209A	Green Dot	18.5	Win AA12	1,145	8,000
1 1/8	Fed 209A	Green Dot	19.0	Rem R12L	1,145	8,000
1 1/8	Ched 209	International	19.1	Rem Fig 8	1,145	8,000
1 1/8	Fed 209A	American Select	19.0	Win WT12	1,145	8,100
1 1/8	Fed 209A	Green Dot	18.5	Rem RXP12	1,145	8,100
1 1/8	Ched 209	Clays	18.4	Rem Fig 8	1,145	8,100
1 1/8	Fed 209A	American Select	19.0	Fed 12S3	1,145	8,200
1 1/8	Fed 209A	Green Dot	19.0	Fed 12C1	1,145	8,200
1 1/8	Fed 209A	Red Dot	18.5	Windjammer	1,145	8,200
1 1/8	Ched 209	International	19.3	Fed 12C1	1,145	8,200
1 1/8	Fed 209A	Red Dot	18.0	Red PC	1,145	8,300
1 1/8	Rem 209P	Red Dot	18.5	Fed 12C1	1,145	8,300
1 1/8	Fed 209A	American Select	19.0	Win AA12	1,145	8,400
1 1/8	Fed 209A	Green Dot	19.0	Lage Uniwad	1,145	8,400
1 1/8	Win 209	Titewad	17.4	Win AA12	1,145	8,400
1 1/8	Rem 209P	American Select	19.0	Fed 12S3	1,145	8,500
1 1/8	Fed 209A	Red Dot	18.0	Fed 12C1	1,145	8,500
1 1/8	Fed 209A	Red Dot	18.0	Lage Uniwad	1,145	8,500
1 1/8	CCI 209SC	American Select	19.0	Fed 12S3	1,145	8,600
1 1/8	Fed 209A	Red Dot	18.0	Win AA12	1,145	8,600
1 1/8	Win 209	Red Dot	18.5	Fed 12C1	1,145	8,600
1 1/8	Fed 209A	Clays	18.3	Fed 12C1	1,145	8,600
1 1/8	Fio 616	Clays	17.5	Hor Versalite	1,145	8,600
1 1/8	Fed 209A	Red Dot	18.0	Fed 12S3	1,145	8,700
1 1/8	Fed 209A	Clays	18.0	Fed 12S3	1,145	8,700
1 1/8	Fed 209A	Red Dot	18.0	Hor Versalite	1,145	8,800
1 1/8	Fed 209A	Titewad	17.9	Fed 12C1	1,145	8,800

12

12 Gauge 2 ¾"
Lead Shot Load Data

Federal Paper Target Shell (With Rolled Paper Basewad)

(Continued) **Hull #20**

12 Gauge 2 ¾"

Hull I.D. Page 91
Reference Notes Page 110

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Clays	18.0	Win AA12	1,145	8,800
1 1/8	Win 209	American Select	19.0	Fed 12S3	1,145	8,900
1 1/8	Fed 209A	Red Dot	18.0	Rem RXP12	1,145	8,900
1 1/8	Fed 209A	Red Dot	18.5	Fio FTW1	1,145	9,000
1 1/8	Fio 616	Titewad	17.0	Hor Versalite	1,145	9,100
1 1/8	Fed 209A	Red Dot	18.5	Rem R12L	1,145	9,300
1 1/8	Ched 209	Titewad	17.4	Windjammer	1,145	9,400
1 1/8	Fed 209A	e3	17.0	Fed 12S3	1,145	9,540
1 1/8	Ched 209	Titewad	17.5	Rem Fig 8	1,145	9,600
1 1/8	Fed 209A	Titewad	17.2	Fed 12S4	1,145	9,600
1 1/8	Ched 209	Titewad	17.2	Fed 12S3	1,145	9,700
1 1/8	CCI 209M	Titewad	17.5	Fed 12C1	1,145	9,800
1 1/8	CCI 209SC	Titewad	16.6	Win AA12F114	1,145	10,500
1 1/8	Rem 209P	Unique	24.0	Fed 12C1	1,200	7,000
1 1/8	Fed 209A	Unique	22.0	Fed 12S3	1,200	7,200
1 1/8	CCI 209M	Unique	24.0	Fed 12C1	1,200	7,200
1 1/8	CCI 209M	International	21.9	Red PC	1,200	7,500
1 1/8	Win 209	International	21.6	Win AA12	1,200	7,500
1 1/8	Win 209	Unique	23.0	Fed 12C1	1,200	7,600
1 1/8	Fed 209A	Unique	23.5	Windjammer	1,200	7,600
1 1/8	CCI 209M	Green Dot	21.5	Fed 12C1	1,200	7,700
1 1/8	Fed 209A	Green Dot	22.0	Windjammer	1,200	7,700
1 1/8	Fed 209A	Green Dot	21.0	Fed 12S3	1,200	7,800
1 1/8	Rem 209P	Green Dot	22.0	Fed 12C1	1,200	7,800
1 1/8	Fed 209A	Unique	22.0	Rem R12L	1,200	7,800
1 1/8	Fed 209A	Unique	22.0	Hor Versalite	1,200	7,900
1 1/8	Fed 209A	Unique	21.0	Rem RXP12	1,200	8,000
1 1/8	Fed 209A	Unique	22.0	Lage Uniwad	1,200	8,000
1 1/8	Win 209	Green Dot	21.0	Fed 12C1	1,200	8,100
1 1/8	Fed 209A	Green Dot	21.0	Fio FTW1	1,200	8,200
1 1/8	Fed 209A	Unique	22.0	Fed 12C1	1,200	8,200
1 1/8	Fed 209A	Green Dot	21.0	Hor Versalite	1,200	8,300
1 1/8	Win 209	Clays	20.0	Fed 12C1	1,200	8,300
1 1/8	Fed 209A	Unique	22.5	Red PC	1,200	8,400
1 1/8	Fed 209A	Green Dot	20.0	Fed 12C1	1,200	8,600
1 1/8	Fed 209A	Green Dot	20.0	Rem R12L	1,200	8,600
1 1/8	Fed 209A	Green Dot	20.0	Rem RXP12	1,200	8,600
1 1/8	Fed 209A	Unique	21.0	Win AA12	1,200	8,600
1 1/8	Fed 209A	Red Dot	19.0	Windjammer	1,200	8,700
1 1/8	CCI 209M	Red Dot	20.0	Fed 12C1	1,200	8,700
1 1/8	Fed 209A	Green Dot	19.5	Rem R12H	1,200	8,800
1 1/8	Fed 209A	Green Dot	20.0	Lage Uniwad	1,200	8,800
1 1/8	Fed 209A	Green Dot	21.0	Red PC	1,200	8,800
1 1/8	Ched 209	International	20.9	Windjammer	1,200	8,800
1 1/8	Fed 209A	Red Dot	19.0	Hor Versalite	1,200	8,900
1 1/8	Fed 209A	Green Dot	19.5	Win AA12	1,200	9,000
1 1/8	Fed 209A	American Select	20.0	Windjammer	1,200	9,100
1 1/8	Fed 209A	Red Dot	19.0	Rem R12H	1,200	9,200

Hull #20 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 91

Reference Notes Page 110

Federal Paper Target Shell (With Rolled Paper Basewad)

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Red Dot	20.0	Fed 12C1	1,200	9,200
1 1/8	Rem 209P	Clays	19.5	Rem Fig 8	1,200	9,200
1 1/8	Ched 209	International	20.4	Rem Fig 8	1,200	9,200
1 1/8	Fed 209A	American Select	20.5	Claybuster	1,200	9,300
1 1/8	Fed 209A	Red Dot	19.0	Fed 12C1	1,200	9,300
1 1/8	Fed 209A	Red Dot	18.5	Lage Uniwad	1,200	9,400
1 1/8	Fed 209A	Red Dot	19.5	Fio FTW1	1,200	9,500
1 1/8	Fed 209A	Red Dot	19.5	Rem R12L	1,200	9,500
1 1/8	Ched 209	International	20.5	Fed 12C1	1,200	9,500
1 1/8	Win 209	American Select	20.5	Fed 12S3	1,200	9,700
1 1/8	Rem 209P	American Select	21.0	Fed 12S3	1,200	9,700
1 1/8	Fed 209A	Clays	19.3	Fed 12C1	1,200	9,700
1 1/8	Fed 209A	American Select	20.0	Rem Fig 8	1,200	9,800
1 1/8	CCI 209SC	American Select	20.5	Fed 12S3	1,200	9,800
1 1/8	Fed 209A	Red Dot	19.0	Fed 12S3	1,200	9,800
1 1/8	Win 209	Red Dot	19.5	Fed 12C1	1,200	9,800
1 1/8	Ched 209	Clays	20.0	Windjammer	1,200	9,800
1 1/8	Fed 209A	Red Dot	19.0	Rem RXP12	1,200	9,900
1 1/8	Win 209	Titewad	18.8	Win AA12	1,200	10,000
1 1/8	Fed 209A	International	21.0	Fed 12S4	1,200	10,000
1 1/8	Fed 209A	American Select	20.0	Hor Versalite	1,200	10,100
1 1/8	Fed 209A	Titewad	19.3	Fed 12C1	1,200	10,100
1 1/8	Fed 209A	American Select	20.5	Win WT12	1,200	10,200
1 1/8	Fed 209A	Red Dot	19.0	Red PC	1,200	10,300
1 1/8	Ched 209	Clays	19.8	Rem Fig 8	1,200	10,300
1 1/8	Fio 616	Clays	19.0	Hor Versalite	1,200	10,300
1 1/8	Fed 209A	American Select	20.5	Fed 12S3	1,200	10,400
1 1/8	Fed 209A	American Select	20.5	Win AA12	1,200	10,400
1 1/8	Fed 209A	Red Dot	19.0	Win AA12	1,200	10,500
1 1/8	Fio 616	Titewad	18.4	Hor Versalite	1,200	10,500
1 1/8	Fed 209A	Clays	19.5	Fed 12S3	1,200	10,500
1 1/8	CCI 209SC	Titewad	17.5	Win AA12F114	1,200	10,800
1 1/8	Ched 209	Titewad	18.8	Rem Fig 8	1,200	10,800
1 1/8	Ched 209	Titewad	18.9	Windjammer	1,200	10,800
1 1/8	Fed 209A	Titewad	18.4	Fed 12S4	1,200	10,800
1 1/8	CCI 209M	Titewad	18.6	Fed 12C1	1,200	10,900
1 1/8	Win 209	Clays	19.0	Win AA12	1,200	10,900
1 1/8	Fed 209A	e3	18.5	Fed 12S3	1,200	10,955
1 1/8	Ched 209	Titewad	18.6	Fed 12S3	1,200	11,300
1 1/8	Rem 209P	Green Dot	23.5	Fed 12C1	1,255	7,500
1 1/8	Rem 209P	Unique	26.0	Fed 12C1	1,255	7,500
1 1/8	Fed 209A	Green Dot	21.5	Fed 12C1	1,255	7,900
1 1/8	Fed 209A	Unique	23.0	Fed 12S3	1,255	8,300
1 1/8	Win 209	Unique	24.5	Fed 12C1	1,255	8,300
1 1/8	CCI 209M	Unique	24.5	Fed 12C1	1,255	8,400
1 1/8	CCI 209M	Green Dot	22.5	Fed 12C1	1,255	8,500
1 1/8	Fed 209A	Green Dot	22.5	Hor Versalite	1,255	8,500
1 1/8	Fed 209A	Unique	22.0	Rem RXP12	1,255	8,500

12

12 Gauge 2 ¾"
Lead Shot Load Data

Federal Paper Target Shell (With Rolled Paper Basewad)

(Continued) **Hull #20**

12 Gauge 2 ¾"

Hull I.D. Page 91
Reference Notes Page 110

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Unique	24.5	Red PC	1,255	8,500
1 1/8	Win 209	International	23.2	Win AA12	1,255	8,600
1 1/8	Fed 209A	Unique	23.0	Hor Versalite	1,255	8,700
1 1/8	CCI 209M	International	22.8	Red PC	1,255	8,800
1 1/8	Fed 209A	Unique	22.5	Fed 12C1	1,255	8,900
1 1/8	Win 209	Green Dot	22.5	Fed 12C1	1,255	9,000
1 1/8	Fed 209A	Unique	22.5	Rem R12H	1,255	9,000
1 1/8	Fed 209A	Green Dot	23.0	Fed 12S3	1,255	9,100
1 1/8	Fed 209A	Green Dot	21.5	Rem RXP12	1,255	9,300
1 1/8	Fed 209A	Red Dot	21.0	Fed 12S3	1,255	9,400
1 1/8	Fed 209A	Unique	22.0	Win AA12	1,255	9,500
1 1/8	Fed 209A	Green Dot	22.5	Red PC	1,255	9,600
1 1/8	Fed 209A	Green Dot	21.5	Rem R12H	1,255	9,900
1 1/8	Fed 209A	Red Dot	20.5	Hor Versalite	1,255	9,900
1 1/8	Ched 209	International	22.1	Windjammer	1,255	9,900
1 1/8	Fed 209A	Red Dot	21.0	Rem RXP12	1,255	10,000
1 1/8	Fed 209A	Red Dot	21.0	Fed 12C1	1,255	10,200
1 1/8	Win 209	Red Dot	21.0	Fed 12C1	1,255	10,300
1 1/8	Ched 209	International	21.7	Rem Fig 8	1,255	10,400
1 1/8	Fed 209A	Green Dot	21.5	Win AA12	1,255	10,500
1 1/8	CCI 209M	Red Dot	21.0	Fed 12C1	1,255	10,500
1 1/8	Fed 209A	Red Dot	20.5	Red PC	1,255	10,700
1 1/8	Rem 209P	Red Dot	21.5	Fed 12C1	1,255	10,700
1 1/8	Ched 209	International	21.6	Fed 12C1	1,255	10,700
1 1/8	Fed 209A	International	22.0	Fed 12S4	1,255	11,200
1 1/8	Rem 209P	Unique	27.5	Fed 12C1	1,310	8,300
1 1/8	Fed 209A	Unique	26.5	Rem RXP12	1,310	8,600
1 1/8	Fed 209A	Unique	26.5	Fed 12C1	1,310	9,000
1 1/8	Fed 209A	Unique	26.5	Win AA12	1,310	9,100
1 1/8	Win 209	Unique	26.5	Fed 12C1	1,310	9,200
1 1/8	Rem 209P	Green Dot	25.5	Fed 12C1	1,310	9,300
1 1/8	CCI 209M	Unique	26.5	Fed 12C1	1,310	9,400
1 1/8	Fed 209A	Green Dot	24.5	Win AA12	1,310	9,700
1 1/8	Fed 209A	Unique	26.5	Fed 12S3	1,310	9,700
1 1/8	Fed 209A	Green Dot	24.5	Rem RXP12	1,310	9,800
1 1/8	Fed 209A	Green Dot	24.5	Fed 12C1	1,310	9,900
1 1/8	Fed 209A	Longshot	30.6	G/BP Z21	1,365	8,100
1 1/8	Fed 209A	Herco	30.0	Win AA12F114	1,400	10,700
1 1/8	Fed 209A	Longshot	33.1	Fed 12C1	1,420	8,500
1 1/8	Rem 209P	Longshot	33.6	Fed 12C1	1,420	8,500
1 1/8	Fed 209A	Longshot	31.4	G/BP Z21	1,420	9,400
1 1/8	Win 209	Longshot	35.7	Win AA12F114	1,475	8,700
1 1/8	Rem 209P	Longshot	34.6	Fed 12C1	1,475	9,500
1 1/8	Fed 209A	Longshot	34.0	Fed 12C1	1,475	9,800
1 1/8	Fed 209A	Longshot	32.2	G/BP Z21	1,475	10,600
1 1/8	Win 209	Longshot	36.5	Win AA12F114	1,530	10,100
1 1/8	Rem 209P	Longshot	35.5	Fed 12C1	1,530	10,300
1 1/8	Fed 209A	Longshot	34.9	Fed 12C1	1,530	11,200

Hull #20 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 91

Reference Notes Page 110

Federal Paper Target Shell (With Rolled Paper Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Unique	23.0	Hor Versalite	1,220	8,800
1 1/4	Rem 209P	Unique	25.5	Fed 12S4	1,220	9,100
1 1/4	Fed 209A	Unique	22.5	Fed 12C1	1,220	9,500
1 1/4	Fed 209A	Unique	23.5	Win AA12F114	1,220	9,500
1 1/4	Fed 209A	Green Dot	21.0	Rem SP12	1,220	9,600
1 1/4	Fed 209A	Green Dot	23.0	Hor Versalite	1,220	9,600
1 1/4	Fed 209A	Unique	22.0	Rem SP12	1,220	9,600
1 1/4	CCI 209M	Unique	25.5	Fed 12S4	1,220	9,700
1 1/4	Fed 209A	Unique	24.0	Fed 12S4	1,220	9,800
1 1/4	Fed 209A	Green Dot	23.0	Win AA12F114	1,220	9,900
1 1/4	Rem 209P	Green Dot	23.0	Fed 12S4	1,220	9,900
1 1/4	Fed 209A	Unique	22.0	Win AA12	1,220	10,000
1 1/4	Fed 209A	Green Dot	21.0	Win AA12	1,220	10,500
1 1/4	CCI 209M	Green Dot	23.0	Fed 12S4	1,220	10,500
1 1/4	Fed 209A	Green Dot	23.0	Fed 12S4	1,220	10,500
1 1/4	Fed 209A	Green Dot	21.0	Fed 12C1	1,220	10,600
1 1/4	Win 209	Unique	24.5	Fed 12S4	1,220	10,600
1 1/4	CCI 209M	Blue Dot	37.0	Fed 12S4	1,330	9,000
1 1/4	Fed 209A	Herco	29.5	Win AA12F114	1,330	9,200
1 1/4	Fed 209A	Herco	29.5	Rem SP12	1,330	9,300
1 1/4	Fed 209A	Herco	29.0	Rem RP12	1,330	9,400
1 1/4	CCI 209M	Herco	29.5	Fed 12S4	1,330	9,900
1 1/4	Fed 209A	Blue Dot	37.0	Fed 12S4	1,330	10,300
1 1/4	Win 209	Blue Dot	37.5	Fed 12S4	1,330	10,300
1 1/4	CCI 209M	Unique	28.0	Fed 12S4	1,330	10,700
1 1/4	Fed 209A	Blue Dot	39.0	Rem RP12	1,400	10,500
1 3/8	Rem 209P	Blue Dot	36.0	Rem SP12	1,240	8,300
1 3/8	CCI 209M	Blue Dot	34.5	Rem SP12	1,240	9,500
1 3/8	Win 209	Blue Dot	34.5	Rem SP12	1,240	9,500
1 3/8	Fed 209A	Blue Dot	34.0	Rem SP12	1,240	9,900
1 3/8	Rem 209P	Blue Dot	38.0	Rem SP12	1,295	8,600
1 3/8	Win 209	Blue Dot	36.5	Rem SP12	1,295	10,200
1 3/8	Fed 209A	Blue Dot	35.5	Rem SP12	1,295	10,300
1 3/8	CCI 209M	Blue Dot	37.0	Rem SP12	1,295	10,600
1 3/8	Fed 209A	Blue Dot	37.5	Rem RP12	1,350	10,700
1 1/2	Fed 209A	Blue Dot	32.5	Rem RP12	1,150	8,800
1 1/2	Fed 209A	Herco	25.0	Rem SP12	1,150	10,200
1 1/2	Fed 209A	Blue Dot	34.0	Rem RP12	1,205	9,300
1 1/2	CCI 209M	Blue Dot	35.0	Rem RP12	1,205	9,400
1 1/2	Win 209	Blue Dot	35.0	Rem RP12	1,205	9,600
1 1/2	Rem 209P	Blue Dot	34.5	Rem RP12	1,205	10,300

12

12 Gauge 2 ¾"
Lead Shot Load Data

Fiocchi Plastic Target Shell (With 10.5 mm Plastic Basewad)

Hull #21
12 Gauge 2 ¾"
Hull I.D. Page 91
Reference Notes Page 110

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Fio 616	Red Dot	17.5	Purple PC	1,200	6,400
7/8	Fio 616	Red Dot	17.0	Win AA12SL	1,200	6,700
7/8	Fio 616	Red Dot	17.5	Fed 12SO	1,200	6,700
7/8	Fio 616	Red Dot	17.0	Rem TGT12	1,200	6,900
7/8	Fio 616	Red Dot	19.0	Purple PC	1,250	6,700
7/8	Fio 616	Red Dot	18.5	Win AA12SL	1,250	6,800
7/8	Fio 616	Red Dot	19.0	Fed 12SO	1,250	6,900
7/8	Fio 616	Red Dot	18.5	Rem TGT12	1,250	7,000
7/8	Fio 616	Green Dot	22.0	Rem TGT12	1,300	7,600
7/8	Fio 616	Green Dot	22.5	Purple PC	1,300	7,700
7/8	Fio 616	Green Dot	22.0	Win AA12SL	1,300	7,900
7/8	Fio 616	Red Dot	20.0	Rem TGT12	1,300	7,900
7/8	Fio 616	Red Dot	20.0	Win AA12SL	1,300	8,100
7/8	Fio 616	Red Dot	20.0	Purple PC	1,300	8,600
7/8	Fio 616	Red Dot	19.5	Fed 12SO	1,300	8,800
1	Fio 616	Green Dot	20.0	Purple PC	1,200	7,200
1	Fio 616	Green Dot	20.0	Rem TGT12	1,200	7,400
1	Fio 616	Green Dot	20.0	Win AA12SL	1,200	7,900
1	Fio 616	Green Dot	20.0	Fed 12SO	1,200	8,100
1	Fio 616	Red Dot	18.0	Purple PC	1,200	8,100
1	Fio 616	Red Dot	18.0	Rem TGT12	1,200	8,500
1	Fio 616	Red Dot	18.0	Win AA12SL	1,200	8,500
1	Fio 616	Red Dot	18.0	Fed 12SO	1,200	9,100
1	Fio 616	Green Dot	21.0	Win AA12SL	1,255	8,100
1	Fio 616	Green Dot	21.0	Purple PC	1,255	8,200
1	Fio 616	Green Dot	21.0	Rem TGT12	1,255	8,400
1	Fio 616	Red Dot	19.0	Rem TGT12	1,255	9,300
1	Fio 616	Red Dot	19.0	Purple PC	1,255	9,500
1	Fio 616	Red Dot	19.0	Win AA12SL	1,255	9,500
1	Fio 616	Green Dot	23.0	Purple PC	1,290	8,400
1	Fio 616	Green Dot	22.5	Rem TGT12	1,290	8,600
1	Fio 616	Green Dot	22.5	Win AA12SL	1,290	9,400
1	Fio 616	Red Dot	21.0	Purple PC	1,290	9,800
1	Fio 616	Red Dot	20.5	Rem TGT12	1,290	10,100
1	Fio 616	Red Dot	20.5	Win AA12SL	1,290	10,300
1 1/8	Fio 616	Green Dot	18.5	Rem Fig 8	1,090	6,500
1 1/8	Fio 616	Green Dot	18.5	Rem RXP12	1,090	6,700
1 1/8	Fio 616	Green Dot	18.5	Fed 12C1	1,090	6,800
1 1/8	Fio 616	Green Dot	18.5	Fio FTW1	1,090	6,800
1 1/8	Fio 616	Green Dot	18.5	Win AA12	1,090	7,000
1 1/8	Fio 616	American Select	18.0	Claybuster	1,090	7,100
1 1/8	Fio 616	Green Dot	18.5	Hor Versalite	1,090	7,100
1 1/8	Fio 616	Green Dot	18.5	Fed 12S3	1,090	7,200
1 1/8	Fio 616	Red Dot	17.0	Win AA12SL	1,090	7,300
1 1/8	Fio 616	American Select	17.5	Fed 12S3	1,090	7,400
1 1/8	Fio 616	American Select	18.0	Fio TL1	1,090	7,400
1 1/8	Fio 616	Red Dot	17.0	Win AA12	1,090	7,600
1 1/8	Fio 616	Red Dot	16.0	Rem Fig 8	1,090	8,000

Hull #21 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 91
Reference Notes Page 110

Fiocchi Plastic Target Shell (With 10.5 mm Plastic Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fio 616	Red Dot	16.5	Fio FTW1	1,090	8,100
1 1/8	Fio 616	Red Dot	16.5	Hor Versalite	1,090	8,100
1 1/8	Fio 616	Red Dot	16.0	Fed 12S3	1,090	8,400
1 1/8	Fio 616	Red Dot	16.5	Rem RXP12	1,090	8,700
1 1/8	Fio 616	Green Dot	20.0	Rem Fig 8	1,145	7,100
1 1/8	Fio 616	Green Dot	19.5	Windjammer	1,145	7,200
1 1/8	Fio 616	Green Dot	20.0	Rem RXP12	1,145	7,200
1 1/8	Fio 616	Green Dot	20.0	Fio FTW1	1,145	7,300
1 1/8	Fio 616	Red Dot	18.5	Windjammer	1,145	7,400
1 1/8	Fio 616	Green Dot	19.5	Fed 12C1	1,145	7,500
1 1/8	Fio 616	Green Dot	19.5	Hor Versalite	1,145	7,500
1 1/8	Fio 616	Green Dot	20.0	Fed 12S3	1,145	7,500
1 1/8	Fio 616	Green Dot	20.0	Win AA12	1,145	7,600
1 1/8	Fio 616	American Select	19.5	Claybuster	1,145	8,000
1 1/8	Fio 616	Red Dot	18.0	Win AA12SL	1,145	8,300
1 1/8	Fio 616	Red Dot	18.0	Rem Fig 8	1,145	8,400
1 1/8	Fio 616	American Select	19.5	Fio TL1	1,145	8,500
1 1/8	Fio 616	American Select	19.0	Fed 12S3	1,145	8,700
1 1/8	Fio 616	Red Dot	18.0	Rem RXP12	1,145	8,700
1 1/8	Fio 616	Red Dot	17.5	Fio FTW1	1,145	8,800
1 1/8	Fio 616	Red Dot	18.0	Fed 12C1	1,145	8,800
1 1/8	Fio 616	Red Dot	17.5	Hor Versalite	1,145	9,000
1 1/8	Fio 616	Red Dot	18.0	Win AA12	1,145	9,000
1 1/8	Fio 616	Red Dot	18.0	Fed 12S3	1,145	9,200
1 1/8	Fio 616	Unique	24.0	Windjammer	1,200	6,400
1 1/8	Fio 616	Unique	23.5	Win AA12	1,200	6,800
1 1/8	Fio 616	Unique	23.5	Fed 12C1	1,200	6,900
1 1/8	Fio 616	Unique	23.5	Rem Fig 8	1,200	7,000
1 1/8	Fio 616	Unique	24.0	Hor Versalite	1,200	7,100
1 1/8	Fio 616	Unique	22.5	Rem RXP12	1,200	7,200
1 1/8	Fio 616	Unique	23.5	Fio FTW1	1,200	7,400
1 1/8	Fio 616	Green Dot	21.0	Windjammer	1,200	7,700
1 1/8	Fio 616	Green Dot	21.0	Fio FTW1	1,200	7,800
1 1/8	Fio 616	Green Dot	21.5	Rem RXP12	1,200	7,900
1 1/8	Fio 616	Green Dot	21.5	Win AA12	1,200	8,100
1 1/8	Fio 616	Green Dot	21.0	Hor Versalite	1,200	8,200
1 1/8	Fio 616	Green Dot	21.0	Fed 12C1	1,200	8,400
1 1/8	Fio 616	Green Dot	21.5	Rem Fig 8	1,200	8,500
1 1/8	Fio 616	Red Dot	20.0	Windjammer	1,200	8,600
1 1/8	Fio 616	American Select	21.0	Claybuster	1,200	9,000
1 1/8	Fio 616	American Select	20.5	Fio TL1	1,200	9,200
1 1/8	Fio 616	Red Dot	19.0	Fio FTW1	1,200	9,300
1 1/8	Fio 616	American Select	20.5	Fed 12S3	1,200	9,400
1 1/8	Fio 616	Red Dot	19.5	Win AA12	1,200	9,400
1 1/8	Fio 616	Red Dot	18.5	Hor Versalite	1,200	9,500
1 1/8	Fio 616	Red Dot	19.0	Fed 12C1	1,200	9,500
1 1/8	Fio 616	Red Dot	19.5	Rem Fig 8	1,200	9,600
1 1/8	Fio 616	Red Dot	19.0	Fed 12S3	1,200	9,700

12

12 Gauge 2 ¾"
Lead Shot Load Data

Fiocchi Plastic Target Shell (With 10.5 mm Plastic Basewad)

(Continued) **Hull #21**

12 Gauge 2 ¾"

Hull I.D. Page 91
Reference Notes Page 110

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fio 616	Red Dot	19.5	Rem RXP12	1,200	9,700
1 1/8	Fio 616	Unique	25.5	Windjammer	1,250	6,900
1 1/8	Fio 616	Herco	26.0	Rem Fig 8	1,250	7,300
1 1/8	Fio 616	Herco	26.0	Fed 12C1	1,250	7,500
1 1/8	Fio 616	Herco	26.0	Rem RXP12	1,250	7,500
1 1/8	Fio 616	Unique	24.5	Rem Fig 8	1,250	7,600
1 1/8	Fio 616	Herco	25.5	Hor Versalite	1,250	7,700
1 1/8	Fio 616	Herco	26.5	Windjammer	1,250	7,700
1 1/8	Fio 616	Unique	25.0	Hor Versalite	1,250	7,800
1 1/8	Fio 616	Unique	25.0	Win AA12	1,250	7,800
1 1/8	Fio 616	Herco	26.0	Win AA12	1,250	7,900
1 1/8	Fio 616	Unique	24.5	Fed 12C1	1,250	8,000
1 1/8	Fio 616	Unique	23.5	Rem RXP12	1,250	8,200
1 1/8	Fio 616	Unique	24.5	Fio FTW1	1,250	8,200
1 1/8	Fio 616	Herco	26.0	Fio FTW1	1,250	8,300
1 1/8	Fio 616	Green Dot	23.0	Rem Fig 8	1,250	8,800
1 1/8	Fio 616	Green Dot	23.0	Win AA12	1,250	8,900
1 1/8	Fio 616	Green Dot	22.5	Windjammer	1,250	9,000
1 1/8	Fio 616	Green Dot	23.0	Fio FTW1	1,250	9,200
1 1/8	Fio 616	Green Dot	23.0	Rem RXP12	1,250	9,200
1 1/8	Fio 616	Green Dot	22.5	Fed 12C1	1,250	9,300
1 1/8	Fio 616	Green Dot	22.5	Hor Versalite	1,250	9,300
1 1/8	Fio 616	Red Dot	21.0	Windjammer	1,250	9,400
1 1/8	Fio 616	American Select	22.0	Fio TL1	1,250	10,200
1 1/8	Fio 616	Red Dot	20.5	Rem Fig 8	1,250	10,200
1 1/8	Fio 616	American Select	22.0	Fed 12S3	1,250	10,300
1 1/8	Fio 616	Red Dot	21.0	Fio FTW1	1,250	10,500
1 1/8	Fio 616	American Select	22.5	Claybuster	1,250	10,700
1 1/8	Fio 616	Red Dot	20.5	Fed 12C1	1,250	10,700
1 1/8	Win 209	Unique	26.5	Win AA12	1,310	8,300
1 1/8	CCI 209M	Unique	26.5	Rem RXP12	1,310	8,400
1 1/8	Fio 616	Unique	27.0	Fed 12S3	1,310	8,600
1 1/8	Win 209	Green Dot	25.0	Win AA12	1,310	8,700
1 1/8	Fio 616	Green Dot	25.0	Fed 12S3	1,310	9,600
1 1/8	CCI 209M	Green Dot	24.0	Rem RXP12	1,310	10,000
1 1/4	CCI 209M	Green Dot	24.5	Rem R12H	1,220	8,000
1 1/4	Win 209	Unique	25.0	Win AA12F114	1,220	8,700
1 1/4	Fio 616	Unique	25.0	Fed 12S4	1,220	8,800
1 1/4	Fio 616	Green Dot	23.0	Fed 12S4	1,220	9,700
1 1/4	Win 209	Green Dot	23.0	Win AA12F114	1,220	10,000
1 1/4	CCI 209M	Herco	28.0	Rem SP12	1,275	8,300
1 1/4	Win 209	Herco	28.0	Win AA12F114	1,275	8,400
1 1/4	Fio 616	Herco	28.0	Fed 12S4	1,275	9,500
1 1/4	Win 209	Unique	27.0	Win AA12F114	1,275	10,000
1 1/4	Fio 616	Unique	27.0	Fed 12S4	1,275	10,300
1 1/4	Fio 616	Blue Dot	39.5	Win AA12F114	1,300	7,500
1 1/4	CCI 209M	Blue Dot	41.0	Rem SP12	1,300	7,600
1 1/4	Fio 616	Blue Dot	41.0	Rem SP12	1,300	7,700

Hull #21 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 91

Reference Notes Page 110

Fiocchi Plastic Target Shell (With 10.5 mm Plastic Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Win 209	Blue Dot	38.5	Win AA12F114	1,300	8,300
1 1/4	Fio 616	Blue Dot	40.0	Fed 12S4	1,300	8,300
1 1/4	Fio 616	Herco	30.5	Rem SP12	1,300	8,600
1 1/4	CCI 209M	Herco	30.0	Rem SP12	1,300	9,200
1 1/4	Fio 616	Herco	30.0	Win AA12F114	1,300	9,200
1 1/4	Fio 616	Herco	30.0	Fed 12S4	1,300	9,500
1 1/4	Win 209	Herco	30.0	Win AA12F114	1,300	10,100
1 3/8	Fio 616	Blue Dot	38.0	Rem RP12	1,295	9,100
1 3/8	Win 209	Blue Dot	38.0	Rem RP12	1,295	9,500
1 3/8	CCI 209M	Blue Dot	37.0	Rem RP12	1,295	9,600
1 3/8	Win 209	Blue Dot	40.0	Rem RP12	1,350	9,900
1 3/8	CCI 209M	Blue Dot	40.0	Rem RP12	1,350	10,100
1 1/2	Fio 616	Blue Dot	32.5	Rem RP12	1,150	8,700
1 1/2	Win 209	Blue Dot	35.5	Rem RP12	1,205	8,600
1 1/2	Fio 616	Blue Dot	36.5	Rem RP12	1,205	9,000
1 1/2	CCI 209M	Blue Dot	33.0	Rem RP12	1,205	9,500
1 1/2	Fio 616	Blue Dot	37.5	Rem RP12	1,260	9,600
1 1/2	Win 209	Blue Dot	36.5	Rem RP12	1,260	10,300
1 1/2	CCI 209M	Blue Dot	36.5	Rem RP12	1,260	10,600
7/8	Fio 616	Red Dot	17.5	Purple PC	1,200	6,400
7/8	Fio 616	Red Dot	17.0	Win AA12SL	1,200	6,700
7/8	Fio 616	Red Dot	17.5	Fed 12SO	1,200	6,700
7/8	Fio 616	Red Dot	17.0	Rem TGT12	1,200	6,900
7/8	Fio 616	Red Dot	19.0	Purple PC	1,250	6,700
7/8	Fio 616	Red Dot	18.5	Win AA12SL	1,250	6,800
7/8	Fio 616	Red Dot	19.0	Fed 12SO	1,250	6,900
7/8	Fio 616	Red Dot	18.5	Rem TGT12	1,250	7,000
7/8	Fio 616	Green Dot	22.0	Rem TGT12	1,300	7,600
7/8	Fio 616	Green Dot	22.5	Purple PC	1,300	7,700
7/8	Fio 616	Green Dot	22.0	Win AA12SL	1,300	7,900
7/8	Fio 616	Red Dot	20.0	Rem TGT12	1,300	7,900
7/8	Fio 616	Red Dot	20.0	Win AA12SL	1,300	8,100
7/8	Fio 616	Red Dot	20.0	Purple PC	1,300	8,600
7/8	Fio 616	Red Dot	19.5	Fed 12SO	1,300	8,800
24 Grams	Fio 616	American Select	22.5	Purple PC	1,345	6,900
24 Grams	Fio 616	American Select	22.0	Win AA12L	1,345	7,500
24 Grams	Fio 616	American Select	22.0	Rem TGT12	1,345	7,600
24 Grams	Fio 616	American Select	22.0	Fed 12SO	1,345	7,800
24 Grams	Fio 616	Red Dot	20.5	Rem TGT12	1,345	8,200
24 Grams	Fio 616	Red Dot	21.0	Win AA12L	1,345	8,500
24 Grams	Fio 616	Red Dot	20.5	Fed 12SO	1,345	8,700
28 Grams	Fio 616	Unique	26.5	Rem Fig 8	1,345	7,500
28 Grams	Fio 616	Unique	27.0	Win AA12SL	1,345	7,700
28 Grams	Fio 616	Green Dot	24.0	Fed 12S3	1,345	8,800
28 Grams	Fio 616	Green Dot	24.0	Purple PC	1,345	8,800
28 Grams	Fio 616	Green Dot	24.0	Rem Fig 8	1,345	8,800

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)
28 Gram Loads = 432.1 Grains (1 oz. Load = 437.5 Grains)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Fiocchi Plastic Target Shell (With 10.5 mm Plastic Basewad)

(Continued) **Hull #21**

12 Gauge 2 ¾"

Hull I.D. Page 91

Reference Notes Page 110

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
28 Grams	Fio 616	Green Dot	24.0	Win AA12SL	1,345	8,800
28 Grams	Fio 616	Red Dot	22.5	Purple PC	1,345	9,500
28 Grams	Fio 616	Red Dot	22.0	Fed 12S3	1,345	9,600
28 Grams	Fio 616	Red Dot	21.5	Rem Fig 8	1,345	9,700
28 Grams	Fio 616	Red Dot	21.5	Win AA12SL	1,345	10,400

28 Gram Loads = 432.1 Grains (1 oz. Load = 437.5 Grains)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Fiocchi, Victory, PMC and Nobel Sport Plastic Shells (With 7 mm Basewad)

Hull #22

12 Gauge 2 ¾"

Hull I.D. Page 92

Reference Notes Page 110

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	CCI 209M	Clays	17.3	Purple PC	1,200	5,700
7/8	Win 209	Clays	16.8	Win AA12SL	1,200	6,200
7/8	Fed 209A	Clays	16.5	Rem TGT12	1,200	6,400
7/8	Fio 616	Clays	16.6	Fed 12SO	1,200	6,800
7/8	CCI 209M	Clays	18.1	Purple PC	1,250	6,300
7/8	Win 209	Clays	18.0	Win AA12SL	1,250	7,200
7/8	Fed 209A	Clays	17.7	Rem TGT12	1,250	7,300
7/8	CCI 209SC	International	21.0	Win AA12SL	1,250	7,300
7/8	Fed 209A	Titewad	18.7	Fed 12SO	1,250	7,400
7/8	Win 209	Titewad	18.4	Win AA12SL	1,250	7,500
7/8	Fio 616	Clays	17.8	Fed 12SO	1,250	7,500
7/8	Fio 616	Titewad	18.2	Fed 12SO	1,250	7,800
7/8	Fed 209A	Clays	18.7	Rem TGT12	1,300	7,400
7/8	CCI 209M	Clays	19.2	Purple PC	1,300	7,700
7/8	Win 209	Clays	19.0	Win AA12SL	1,300	8,000
7/8	CCI 209SC	International	22.0	Win AA12SL	1,300	8,100
7/8	Win 209	Titewad	19.5	Win AA12SL	1,300	8,400
7/8	Fio 616	Clays	19.2	Fed 12SO	1,300	8,500
7/8	Fed 209A	Titewad	19.7	Fed 12SO	1,300	8,600
7/8	Fio 616	Titewad	19.5	Fed 12SO	1,300	8,900
7/8	CCI 209SC	International	22.5	Win AA12SL	1,350	8,500
7/8	Win 209	Titewad	20.6	Win AA12SL	1,350	9,300
7/8	Fed 209A	Titewad	20.7	Fed 12SO	1,350	9,700
7/8	Fio 616	Titewad	20.5	Fed 12SO	1,350	10,000
7/8	Win 209	Titewad	21.5	Win AA12SL	1,400	10,000
7/8	Fed 209A	Titewad	22.0	Fed 12SO	1,400	10,500
7/8	Fio 616	Titewad	21.5	Fed 12SO	1,400	11,200
1	CCI 209M	International	19.6	Purple PC	1,180	6,400
1	Win 209	International	19.0	Win AA12SL	1,180	7,100
1	CCI 209M	Clays	18.0	Purple PC	1,180	7,300

Hull #22 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 92
Reference Notes Page 110

Fiocchi, Victory, PMC and Nobel Sport Plastic Shells (With 7 mm Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Titewad	17.2	Win AA12SL	1,180	7,400
1	Win 209	Clays	17.1	Win AA12SL	1,180	7,800
1	Fio 616	Titewad	17.0	Rem Fig 8	1,180	8,200
1	Fed 209A	Titewad	17.0	Fed 12SO	1,180	8,400
1	CCI 209SC	Clays	18.0	Win AA12SL	1,180	8,400
1	CCI 209M	International	20.5	Purple PC	1,235	7,000
1	CCI 209M	Clays	19.1	Purple PC	1,235	8,600
1	Win 209	International	20.0	Win AA12SL	1,235	8,600
1	Win 209	Titewad	18.5	Win AA12SL	1,235	8,900
1	Fio 616	Titewad	18.0	Rem Fig 8	1,235	9,200
1	Win 209	Clays	18.5	Win AA12SL	1,235	9,200
1	CCI 209SC	Clays	18.5	Win AA12SL	1,235	9,500
1	Fed 209A	Titewad	19.0	Fed 12SO	1,235	10,200
1	CCI 209M	International	21.6	Purple PC	1,290	8,200
1	CCI 209M	Clays	19.9	Purple PC	1,290	9,400
1	Win 209	International	21.1	Win AA12SL	1,290	9,600
1	Win 209	Titewad	19.8	Win AA12SL	1,290	9,800
1	Fio 616	Titewad	19.5	Rem Fig 8	1,290	10,300
1	Win 209	Clays	19.3	Win AA12SL	1,290	10,600
1	Fed 209A	Titewad	20.0	Fed 12SO	1,290	11,100
1 1/8	Rem 209P	Clays	17.6	Rem Fig 8	1,090	6,200
1 1/8	CCI 209	Clays	17.9	Hor Versalite	1,090	6,300
1 1/8	Ched 209	International	18.2	Rem Fig 8	1,090	6,600
1 1/8	Win 209	Clays	16.3	Win AA12	1,090	6,800
1 1/8	Fio 616	Clays	16.5	Fio TL1	1,090	7,000
1 1/8	Ched 209	International	17.9	Fio TL1	1,090	7,000
1 1/8	Ched 209	International	17.9	Win AA12	1,090	7,000
1 1/8	Win 209	International	19.2	Win AA12	1,090	7,000
1 1/8	Ched 209	Clays	16.9	Rem Fig 8	1,090	7,100
1 1/8	CCI 209SC	International	19.0	Fio TL1	1,090	7,400
1 1/8	Fio 616	International	19.3	Fio TL1	1,090	7,400
1 1/8	Ched 209	Clays	16.7	Win AA12	1,090	7,700
1 1/8	Fed 209A	International	18.0	Fio TL1	1,090	7,800
1 1/8	Win 209	Titewad	16.2	Win AA12	1,090	7,900
1 1/8	CCI 209SC	Clays	16.8	Fio TL1	1,090	8,300
1 1/8	Ched 209	Clays	16.8	Fio TL1	1,090	8,300
1 1/8	Ched 209	Titewad	15.5	Rem Fig 8	1,090	8,500
1 1/8	Ched 209	Titewad	15.5	Win AA12	1,090	8,600
1 1/8	Ched 209	Titewad	15.6	Fio TL1	1,090	8,800
1 1/8	Fed 209A	Clays	16.5	Fed 12S3	1,090	9,100
1 1/8	Fio 616	Titewad	15.3	Fio TL1	1,090	9,300
1 1/8	Rem 209P	Clays	18.8	Rem Fig 8	1,145	6,800
1 1/8	CCI 209	Clays	18.9	Hor Versalite	1,145	7,000
1 1/8	Win 209	International	19.7	Win AA12	1,145	7,400
1 1/8	Ched 209	International	19.5	Rem Fig 8	1,145	7,700
1 1/8	Fio 616	International	20.3	Fio TL1	1,145	7,700
1 1/8	Ched 209	International	19.1	Win AA12	1,145	7,900
1 1/8	Fio 616	Clays	17.9	Fio TL1	1,145	8,000

Fiocchi, Victory, PMC and Nobel Sport Plastic Shells (With 7 mm Basewad)

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Clays	17.6	Win AA12	1,145	8,000
1 1/8	Ched 209	International	19.3	Fio TL1	1,145	8,200
1 1/8	Fed 209A	International	18.5	Fio TL1	1,145	8,300
1 1/8	Win 209	Titewad	16.9	Win AA12	1,145	8,500
1 1/8	CCI 209SC	International	20.0	Fio TL1	1,145	8,500
1 1/8	Ched 209	Clays	18.3	Rem Fig 8	1,145	8,700
1 1/8	CCI 209SC	Clays	18.0	Fio TL1	1,145	8,900
1 1/8	Ched 209	Clays	17.9	Win AA12	1,145	9,100
1 1/8	Ched 209	Clays	18.1	Fio TL1	1,145	9,500
1 1/8	Ched 209	Titewad	17.0	Rem Fig 8	1,145	9,600
1 1/8	Ched 209	Titewad	16.8	Win AA12	1,145	9,800
1 1/8	Fed 209A	Clays	17.0	Fed 12S3	1,145	10,000
1 1/8	Ched 209	Titewad	17.0	Fio TL1	1,145	10,400
1 1/8	Fio 616	Titewad	16.4	Fio TL1	1,145	10,500
1 1/8	Rem 209P	Clays	19.9	Rem Fig 8	1,200	7,500
1 1/8	CCI 209	Clays	20.0	Hor Versalite	1,200	7,700
1 1/8	Fio 616	International	21.0	Fio TL1	1,200	8,300
1 1/8	Win 209	International	21.0	Win AA12	1,200	8,500
1 1/8	Fio 616	Universal	23.4	Fio TL1	1,200	8,600
1 1/8	Ched 209	International	20.8	Rem Fig 8	1,200	8,700
1 1/8	Ched 209	International	20.1	Win AA12	1,200	8,700
1 1/8	Fio 616	Clays	19.4	Fio TL1	1,200	9,100
1 1/8	Win 209	Universal	23.3	Win AA12	1,200	9,100
1 1/8	Win 209	Clays	18.9	Win AA12	1,200	9,200
1 1/8	CCI 209SC	International	21.0	Fio TL1	1,200	9,400
1 1/8	Ched 209	International	20.7	Fio TL1	1,200	9,400
1 1/8	Win 209	Titewad	18.5	Win AA12	1,200	10,000
1 1/8	Ched 209	Clays	19.7	Rem Fig 8	1,200	10,300
1 1/8	Fed 209A	International	20.0	Fio TL1	1,200	10,400
1 1/8	Ched 209	Clays	19.2	Win AA12	1,200	10,500
1 1/8	Ched 209	Titewad	18.5	Rem Fig 8	1,200	10,800
1 1/8	Ched 209	Clays	19.5	Fio TL1	1,200	10,800
1 1/8	Ched 209	Titewad	18.1	Win AA12	1,200	11,000
1 1/8	Fio 616	Titewad	17.7	Fio TL1	1,200	11,400
1 1/8	Win 209	Universal	24.0	Win AA12	1,255	9,600
1 1/8	Ched 209	International	22.1	Rem Fig 8	1,255	9,700
1 1/8	Win 209	International	22.0	Win AA12	1,255	9,800
1 1/8	Fio 616	Universal	25.0	Fio TL1	1,255	9,800
1 1/8	Fio 616	International	22.6	Fio TL1	1,255	9,900
1 1/8	Ched 209	International	21.7	Win AA12	1,255	10,000
1 1/8	Ched 209	International	22.0	Fio TL1	1,255	10,400
1 1/8	Fio 616	Universal	26.5	Fio TL1	1,310	10,600
1 1/8	Win 209	Universal	25.0	Win AA12	1,310	10,800
1 1/8	Fio 616	Longshot	33.4	Rem Fig 8	1,420	7,500
1 1/8	Fio 616	Longshot	33.7	Windjammer	1,420	7,600
1 1/8	Fio 616	Longshot	33.2	Fed 12S3	1,420	8,000
1 1/8	Fio 616	Longshot	33.4	Fio TL1	1,420	8,300
1 1/8	Fio 616	Longshot	32.7	Win AA12	1,420	8,400

Hull #22 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 92
Reference Notes Page 110

Fiocchi, Victory, PMC and Nobel Sport Plastic Shells (With 7 mm Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fio 616	Longshot	35.3	Windjammer	1,475	8,400
1 1/8	Fio 616	Longshot	34.9	Rem Fig 8	1,475	8,500
1 1/8	Fio 616	Longshot	34.7	Fed 12S3	1,475	8,900
1 1/8	Fio 616	Longshot	34.8	Fio TL1	1,475	9,300
1 1/8	Fio 616	Longshot	34.0	Win AA12	1,475	9,300
1 1/8	Fio 616	Longshot	36.8	Windjammer	1,530	9,200
1 1/8	Fio 616	Longshot	36.4	Rem Fig 8	1,530	9,400
1 1/8	Fio 616	Longshot	36.2	Fed 12S3	1,530	9,800
1 1/8	Fio 616	Longshot	35.3	Win AA12	1,530	10,100
1 1/8	Fio 616	Longshot	36.2	Fio TL1	1,530	10,300
1 1/8	Fio 616	Longshot	38.3	Windjammer	1,585	10,000
1 1/8	Fio 616	Longshot	37.9	Rem Fig 8	1,585	10,300
1 1/8	Fio 616	Longshot	37.8	Fed 12S3	1,585	10,700
1 1/8	Fio 616	Longshot	36.6	Win AA12	1,585	11,000
1 1/8	Fio 616	Longshot	37.6	Fio TL1	1,585	11,200
1 1/4	Fio 616	Universal	24.0	Win AA12F114	1,220	10,900
1 1/4	Win 209	Universal	24.0	Rem SP12	1,220	10,900
1 1/4	Win 209	HS-6	35.0	Rem R12H	1,330	9,200
1 3/8	Fio 616	Longshot	25.6	G/BP Sport	1,185	8,000
1 3/8	Win 209	Longshot	26.0	Fed 12S4	1,185	8,300
1 3/8	Fio 616	Longshot	27.4	Rem SP12	1,240	8,700
1 3/8	Fio 616	Longshot	27.3	G/BP Sport	1,240	9,200
1 3/8	Win 209	Longshot	27.5	Fed 12S4	1,240	9,300
1 3/8	Fio 616	Longshot	28.9	Rem SP12	1,295	9,700
1 3/8	Fio 616	Longshot	28.9	G/BP Sport	1,295	10,400
1 3/8	Win 209	Longshot	29.0	Fed 12S4	1,295	10,400
1 3/8	Fio 616	Longshot	30.5	Rem SP12	1,350	10,700
1 3/8	Fio 616	Longshot	30.8	G/BP Sport	1,350	11,500
1 1/2	Fio 616	HS-7	39.0	Win AA12R	1,260	10,800

Hull #24
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	Clays	18.8	CB4100-12	1,200	5,200
7/8	Rem 209P	American Select	18.9	CB4100-12B	1,200	5,245
7/8	Rem 209P	American Select	18.0	Win AA12L	1,200	5,800
7/8	Rem 209P	Clays	16.9	CB4100-12	1,200	5,800
7/8	Rem 209P	Clays	16.4	Rem TGT12	1,200	6,300
7/8	Rem 209P	Clays	16.8	Win AA12L	1,200	6,700
7/8	Rem 209P	Red Dot	17.0	Rem TGT12	1,200	6,800
7/8	Rem 209P	Red Dot	17.5	Purple PC	1,200	6,800
7/8	Rem 209P	Red Dot	17.0	Win AA12SL	1,200	7,000

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	CCI 209SC	Clays	18.0	Rem TGT12	1,200	7,000
7/8	CCI 209SC	Clays	16.8	Win AA12L	1,200	7,000
7/8	Rem 209P	Red Dot	17.5	CB4100-12B	1,200	7,075
7/8	Win 209	Clays	15.9	Win AA12SL	1,200	7,100
7/8	Rem 209P	Red Dot	17.0	Fed 12SO	1,200	7,200
7/8	Rem 209P	Clays	16.0	Fed 12SO	1,200	7,500
7/8	Win 209	Clays	16.8	Rem TGT12	1,200	7,500
7/8	Fed 209A	Clays	16.2	Activ TG-30	1,200	7,700
7/8	CCI 209	Clays	16.1	Rem TGT12	1,200	7,900
7/8	Rem 209P	Red Dot	16.5	Win AA12L	1,200	8,000
7/8	Fed 209A	Clays	16.0	Win AA12L	1,200	8,100
7/8	Win 209	Clays	17.1	Win AA12L	1,200	8,100
7/8	Fed 209A	Clays	16.1	Rem TGT12	1,200	8,700
7/8	CCI 209	Clays	16.3	Win AA12L	1,200	8,800
7/8	Fed 209A	Clays	16.3	Fed 12SO	1,200	8,900
7/8	Rem 209P	American Select	19.6	CB4100-12B	1,250	5,855
7/8	Win 209	Clays	19.8	CB4100-12	1,250	6,100
7/8	Win 209	International	20.2	Rem TGT12	1,250	6,500
7/8	Win 209	International	20.7	Win AA12L	1,250	6,500
7/8	Rem 209P	International	20.0	Rem TGT12	1,250	6,600
7/8	Rem 209P	Clays	18.2	CB4100-12	1,250	6,700
7/8	Rem 209P	American Select	19.0	Win AA12L	1,250	6,825
7/8	Rem 209P	Red Dot	18.5	Purple PC	1,250	6,900
7/8	CCI 209	International	19.8	Rem TGT12	1,250	6,900
7/8	Rem 209P	International	20.5	Win AA12L	1,250	6,900
7/8	Win 209	International	20.2	Fed 12SO	1,250	6,900
7/8	Rem 209P	Titewad	17.8	CB4100-12	1,250	7,000
7/8	Win 209	Titewad	18.7	CB4100-12	1,250	7,000
7/8	Rem 209P	Red Dot	18.5	Rem TGT12	1,250	7,100
7/8	Rem 209P	Clays	17.5	Rem TGT12	1,250	7,100
7/8	CCI 209	International	20.0	Win AA12L	1,250	7,100
7/8	CCI 209SC	International	20.7	Rem TGT12	1,250	7,100
7/8	CCI 209SC	International	20.0	Win AA12L	1,250	7,100
7/8	Fed 209A	International	19.4	Win AA12L	1,250	7,200
7/8	Rem 209P	Clays	18.0	Win AA12L	1,250	7,300
7/8	Fed 209A	International	19.1	Rem TGT12	1,250	7,300
7/8	Rem 209P	Red Dot	18.0	CB4100-12B	1,250	7,445
7/8	Fed 209A	International	19.3	Fed 12SO	1,250	7,700
7/8	Rem 209P	Red Dot	18.0	Fed 12SO	1,250	7,800
7/8	Rem 209P	Red Dot	18.5	Win AA12SL	1,250	7,800
7/8	CCI 209SC	Clays	17.8	Win AA12L	1,250	7,800
7/8	CCI 209SC	Clays	18.8	Rem TGT12	1,250	7,900
7/8	Rem 209P	Titewad	17.4	Rem TGT12	1,250	8,200
7/8	Rem 209P	Titewad	16.9	Win AA12L	1,250	8,200
7/8	Rem 209P	Clays	17.2	Fed 12SO	1,250	8,200
7/8	Win 209	Titewad	17.3	Win AA12L	1,250	8,300
7/8	Rem 209P	Clays	18.0	Win AA12SL	1,250	8,400
7/8	Win 209	Clays	18.0	Rem TGT12	1,250	8,400

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	Titewad	17.0	Rem TGT12	1,250	8,500
7/8	Rem 209P	Red Dot	17.5	Win AA12L	1,250	8,670
7/8	Win 209	Clays	18.0	Win AA12L	1,250	8,900
7/8	Win 209	Clays	17.1	Win AA12SL	1,250	8,900
7/8	Fed 209A	Titewad	16.8	Rem TGT12	1,250	9,100
7/8	Fed 209A	Clays	17.5	Activ TG-30	1,250	9,200
7/8	CCI 209	Titewad	16.9	Rem TGT12	1,250	9,400
7/8	CCI 209	Clays	17.3	Rem TGT12	1,250	9,400
7/8	CCI 209SC	Titewad	16.6	Rem TGT12	1,250	9,600
7/8	Fed 209A	Titewad	17.0	Win AA12L	1,250	9,600
7/8	Fed 209A	Clays	17.3	Fed 12SO	1,250	9,600
7/8	Fed 209A	Clays	17.3	Rem TGT12	1,250	9,800
7/8	CCI 209	Clays	17.3	Win AA12L	1,250	9,900
7/8	CCI 209	Titewad	16.8	Win AA12L	1,250	10,100
7/8	Fed 209A	Clays	17.0	Win AA12L	1,250	10,200
7/8	CCI 209SC	Titewad	17.0	Win AA12SL	1,250	10,600
7/8	Rem 209P	American Select	20.5	CB4100-12B	1,300	6,695
7/8	Rem 209P	American Select	20.5	CB1100-12	1,300	6,900
7/8	Rem 209P	American Select	20.5	Rem TGT12	1,300	7,000
7/8	Win 209	Clays	20.8	CB4100-12	1,300	7,000
7/8	Rem 209P	Green Dot	22.0	Rem TGT12	1,300	7,100
7/8	Rem 209P	American Select	20.0	Win AA12L	1,300	7,200
7/8	Win 209	International	21.3	Rem TGT12	1,300	7,300
7/8	Rem 209P	Clays	18.9	Rem TGT12	1,300	7,400
7/8	Win 209	International	21.5	Win AA12L	1,300	7,400
7/8	Rem 209P	Red Dot	20.0	Purple PC	1,300	7,500
7/8	Rem 209P	International	21.0	Rem TGT12	1,300	7,500
7/8	Rem 209P	Clays	19.6	CB4100-12	1,300	7,600
7/8	Rem 209P	International	21.3	Win AA12L	1,300	7,600
7/8	Rem 209P	American Select	20.5	Fed 12SO	1,300	7,700
7/8	CCI 209SC	International	21.0	Rem TGT12	1,300	7,700
7/8	Win 209	Titewad	19.8	CB4100-12	1,300	7,800
7/8	CCI 209	International	20.8	Rem TGT12	1,300	7,800
7/8	Win 209	International	21.2	Fed 12SO	1,300	7,800
7/8	Rem 209P	American Select	20.5	Win AA12SL	1,300	7,900
7/8	Rem 209P	Green Dot	21.5	Win AA12SL	1,300	7,900
7/8	CCI 209	International	20.9	Win AA12L	1,300	7,900
7/8	Rem 209P	Green Dot	22.0	Fed 12SO	1,300	8,000
7/8	Rem 209P	Red Dot	20.5	Win AA12SL	1,300	8,000
7/8	Rem 209P	Titewad	19.0	CB4100-12	1,300	8,000
7/8	CCI 209SC	International	21.0	Win AA12L	1,300	8,000
7/8	Fed 209A	International	20.4	Win AA12L	1,300	8,000
7/8	Rem 209P	Red Dot	19.0	CB4100-12B	1,300	8,065
7/8	Rem 209P	Red Dot	20.0	Fed 12SO	1,300	8,100
7/8	Rem 209P	Red Dot	20.5	Rem TGT12	1,300	8,200
7/8	Fed 209A	International	20.2	Rem TGT12	1,300	8,200
7/8	Fed 209A	International	20.4	Fed 12SO	1,300	8,700
7/8	CCI 209SC	Clays	19.5	Rem TGT12	1,300	8,900

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93

Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209P	Clays	19.3	Win AA12L	1,300	9,000
7/8	Rem 209P	Titewad	18.7	Rem TGT12	1,300	9,100
7/8	Rem 209P	Clays	18.8	Fed 12SO	1,300	9,100
7/8	Win 209	Clays	19.0	Rem TGT12	1,300	9,100
7/8	Rem 209P	Red Dot	18.5	Win AA12L	1,300	9,110
7/8	Win 209	Titewad	18.6	Win AA12L	1,300	9,200
7/8	Rem 209P	Titewad	18.4	Win AA12L	1,300	9,400
7/8	Win 209	Titewad	18.0	Rem TGT12	1,300	9,900
7/8	CCI 209SC	Clays	18.6	Win AA12L	1,300	10,000
7/8	Win 209	Clays	18.2	Win AA12SL	1,300	10,000
7/8	Fed 209A	Titewad	18.0	Rem TGT12	1,300	10,100
7/8	CCI 209	Clays	18.3	Rem TGT12	1,300	10,100
7/8	Win 209	Clays	19.3	Win AA12L	1,300	10,100
7/8	Rem 209P	Clays	19.5	Win AA12SL	1,300	10,200
7/8	Fed 209A	Clays	18.5	Activ TG-30	1,300	10,300
7/8	CCI 209	Titewad	18.0	Win AA12L	1,300	10,700
7/8	Fed 209A	Titewad	18.0	Win AA12L	1,300	10,700
7/8	CCI 209	Titewad	17.8	Rem TGT12	1,300	10,800
7/8	CCI 209SC	Titewad	17.7	Rem TGT12	1,300	10,800
7/8	Fed 209A	Clays	18.2	Win AA12L	1,300	10,800
7/8	CCI 209SC	Titewad	17.3	Win AA12SL	1,300	10,900
7/8	Fed 209A	Clays	18.3	Rem TGT12	1,300	11,100
7/8	CCI 209	Clays	18.7	Win AA12L	1,300	11,200
7/8	Fed 209A	Clays	18.5	Fed 12SO	1,300	11,500
7/8	CCI 209	WST	21.5	Win AA12	1,325	8,100
7/8	Win 209	WST	21.0	Win AA12	1,325	8,200
7/8	Fed 209A	WST	21.0	Win AA12	1,325	8,300
7/8	Win 209	Clays	21.8	CB4100-12	1,350	7,900
7/8	Win 209	International	22.3	Rem TGT12	1,350	8,100
7/8	Win 209	International	22.3	Win AA12L	1,350	8,200
7/8	Rem 209P	International	21.9	Rem TGT12	1,350	8,300
7/8	Rem 209P	Clays	20.9	CB4100-12	1,350	8,400
7/8	CCI 209SC	International	22.2	Rem TGT12	1,350	8,400
7/8	Rem 209P	International	22.2	Win AA12L	1,350	8,400
7/8	Win 209	Titewad	20.9	CB4100-12	1,350	8,500
7/8	CCI 209	International	21.9	Rem TGT12	1,350	8,700
7/8	CCI 209	International	21.9	Win AA12L	1,350	8,700
7/8	Win 209	International	22.2	Fed 12SO	1,350	8,700
7/8	Rem 209P	Titewad	20.1	CB4100-12	1,350	8,800
7/8	CCI 209SC	International	22.0	Win AA12L	1,350	9,000
7/8	Fed 209A	International	21.3	Rem TGT12	1,350	9,000
7/8	Fed 209A	International	21.5	Win AA12L	1,350	9,000
7/8	Rem 209P	Titewad	19.8	Rem TGT12	1,350	9,500
7/8	Fed 209A	International	21.4	Fed 12SO	1,350	9,600
7/8	Rem 209P	Clays	20.3	Win AA12L	1,350	9,700
7/8	CCI 209SC	Clays	20.5	Rem TGT12	1,350	9,900
7/8	Rem 209P	Titewad	19.7	Win AA12L	1,350	10,100
7/8	Win 209	Clays	20.0	Rem TGT12	1,350	10,100

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	Titewad	19.8	Win AA12L	1,350	10,600
7/8	Win 209	Titewad	19.2	Rem TGT12	1,350	10,900
7/8	Fed 209A	Titewad	19.1	Rem TGT12	1,350	11,000
7/8	CCI 209SC	Clays	19.6	Win AA12L	1,350	11,000
7/8	CCI 209	Clays	19.6	Rem TGT12	1,350	11,200
7/8	CCI 209	Titewad	19.0	Rem TGT12	1,350	11,400
7/8	Win 209	Clays	20.1	Win AA12L	1,350	11,400
7/8	CCI 209	Titewad	19.0	Win AA12L	1,350	11,500
7/8	CCI 209SC	Titewad	18.8	Rem TGT12	1,350	11,500
7/8	Fed 209A	Titewad	19.0	Win AA12L	1,350	11,500
7/8	Win 209	International	23.4	Rem TGT12	1,400	8,900
7/8	CCI 209	WST	23.0	Win AA12	1,400	9,000
7/8	Win 209	International	23.1	Win AA12L	1,400	9,100
7/8	CCI 209SC	International	23.2	Rem TGT12	1,400	9,200
7/8	Rem 209P	International	22.9	Rem TGT12	1,400	9,200
7/8	Rem 209P	International	23.1	Win AA12L	1,400	9,300
7/8	Win 209	Titewad	22.1	CB4100-12	1,400	9,400
7/8	CCI 209	International	22.8	Win AA12L	1,400	9,500
7/8	Win 209	International	23.2	Fed 12SO	1,400	9,500
7/8	CCI 209	International	22.9	Rem TGT12	1,400	9,600
7/8	Rem 209P	Titewad	21.3	CB4100-12	1,400	9,700
7/8	Fed 209A	WST	23.0	Win AA12	1,400	9,700
7/8	CCI 209SC	International	22.9	Win AA12L	1,400	9,900
7/8	Fed 209A	International	22.4	Rem TGT12	1,400	9,900
7/8	Fed 209A	International	22.6	Win AA12L	1,400	10,000
7/8	Rem 209P	American Select	22.0	Win AA12L	1,400	10,250
7/8	Win 209	WST	23.0	Win AA12	1,400	10,300
7/8	Rem 209P	Titewad	21.0	Rem TGT12	1,400	10,500
7/8	Fed 209A	International	22.5	Fed 12SO	1,400	10,600
7/8	Rem 209P	Titewad	20.9	Win AA12L	1,400	11,300
7/8	Win 209	Titewad	21.1	Win AA12L	1,400	11,300
7/8	Fed 209A	Titewad	20.2	Rem TGT12	1,400	11,500
1	Win 209	SR7625	21.0	CB1100-12	1,090	4,600
1	Fed 209A	SR7625	20.5	CB1100-12	1,090	5,000
1	Fed 209A	700-X	14.5	CB1100-12	1,090	6,600
1	Rem 209P	700-X	14.5	Rem TGT12	1,090	6,600
1	Rem 209P	700-X	14.5	Fed 12S3	1,090	7,400
1	Win 209	700-X	14.5	Fed 12S3	1,090	7,800
1	Fed 209A	SR7625	19.0	Win AA12SL	1,095	4,200
1	Fed 209A	SR7625	20.5	Rem TGT12	1,095	5,300
1	Fed 209A	PB	18.5	CB1100-12	1,095	5,700
1	Rem 209P	PB	18.5	Fed 12S3	1,095	6,100
1	Fed 209A	SR7625	20.0	Fed 12S3	1,095	6,100
1	Win 209	700-X	15.0	CB1100-12	1,095	6,300
1	Rem 209P	PB	18.0	Win AA12SL	1,095	6,500
1	Fed 209A	700-X	14.5	Fed 12S3	1,095	8,000
1	Rem 209P	PB	19.5	CB1100-12	1,100	5,100
1	Win 209	SR7625	21.0	Fed 12S3	1,100	5,300

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	PB	19.0	Rem TGT12	1,100	5,700
1	Rem 209P	SR7625	21.0	Win AA12SL	1,100	5,800
1	Win 209	PB	18.5	Rem TGT12	1,100	5,900
1	Fed 209A	PB	18.0	Fed 12S3	1,100	6,500
1	Fed 209A	700-X	14.5	Rem TGT12	1,100	7,200
1	Rem 209P	700-X	14.5	Win AA12SL	1,100	7,300
1	Win 209	SR7625	21.0	Rem TGT12	1,105	5,300
1	Win 209	PB	19.5	CB1100-12	1,105	5,400
1	Win 209	SR7625	20.0	Win AA12SL	1,105	5,700
1	Rem 209P	SR7625	20.0	Fed 12S3	1,105	6,000
1	Fed 209A	PB	18.5	Rem TGT12	1,105	6,200
1	Rem 209P	700-X	15.0	CB1100-12	1,105	6,500
1	Fed 209A	700-X	14.5	Win AA12SL	1,105	7,700
1	Rem 209P	SR7625	22.0	CB1100-12	1,110	4,700
1	Rem 209P	SR7625	21.5	Rem TGT12	1,110	5,100
1	Rem 209P	PB	19.0	Rem TGT12	1,110	5,700
1	Win 209	PB	19.0	Fed 12S3	1,110	6,300
1	Win 209	700-X	15.0	Rem TGT12	1,110	7,300
1	Win 209	700-X	15.0	Win AA12SL	1,110	7,400
1	Fed 209A	PB	18.0	Win AA12SL	1,115	7,000
1	Win 209	Clays	17.3	Windjammer	1,125	5,500
1	Win 209	Titewad	16.6	Purple PC	1,125	5,600
1	Win 209	Clays	16.8	Purple PC	1,125	5,700
1	Rem 209P	Clays	16.7	CB4100-12	1,125	5,800
1	Rem 209P	Clays	16.6	Purple PC	1,125	6,100
1	CCI 209	Clays	17.1	Purple PC	1,125	6,400
1	Fed 209A	Titewad	16.2	Purple PC	1,125	6,500
1	Win 209	Clays	16.3	Rem TGT12	1,125	6,500
1	Rem 209P	Clays	16.8	Rem TGT12	1,125	6,600
1	Rem 209P	Clays	16.4	Win AA12SL	1,125	6,700
1	Rem 209P	Titewad	15.7	CB4100-12	1,125	6,800
1	Win 209	Titewad	15.8	CB4100-12	1,125	6,800
1	CCI 209SC	Clays	15.7	Rem TGT12	1,125	6,900
1	Win 209	Clays	15.7	Win AA12SL	1,125	7,100
1	Win 209	Titewad	15.3	Rem TGT12	1,125	7,400
1	Fed 209A	Titewad	15.5	Rem TGT12	1,125	7,500
1	Win 209	Titewad	15.5	Win AA12SL	1,125	7,900
1	Fed 209A	Clays	16.0	Purple PC	1,125	7,900
1	Fed 209A	Titewad	15.8	Win AA12SL	1,125	8,000
1	CCI 209	Titewad	15.2	Rem TGT12	1,125	8,200
1	CCI 209	Titewad	15.8	Win AA12L	1,125	8,200
1	CCI 209SC	Titewad	15.2	Win AA12SL	1,125	8,200
1	CCI 209SC	Clays	15.8	Win AA12SL	1,125	8,300
1	CCI 209	Clays	15.1	Win AA12SL	1,125	8,500
1	CCI 209	Clays	15.4	Rem TGT12	1,125	8,700
1	Fed 209A	Clays	15.6	Win AA12SL	1,125	9,200
1	Win 209	700-X	15.5	Fed 12S3	1,135	8,700
1	Rem 209P	SR7625	21.0	Fed 12S3	1,140	6,300

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	PB	19.5	Rem TGT12	1,140	6,500
1	Fed 209A	SR7625	21.0	Fed 12S3	1,140	6,700
1	Fed 209A	PB	19.0	Fed 12S3	1,140	7,200
1	Rem 209P	700-X	15.5	Rem TGT12	1,140	7,500
1	Win 209	700-X	15.5	Rem TGT12	1,140	7,700
1	Rem 209P	700-X	15.5	Fed 12S3	1,140	8,300
1	Fed 209A	700-X	15.5	Fed 12S3	1,140	8,900
1	Win 209	SR7625	22.0	Rem TGT12	1,145	5,700
1	Win 209	SR7625	22.0	Fed 12S3	1,145	6,000
1	Win 209	PB	20.0	Rem TGT12	1,145	6,300
1	Fed 209A	PB	19.5	Rem TGT12	1,145	6,700
1	Rem 209P	700-X	15.5	Win AA12SL	1,145	8,100
1	Win 209	SR7625	22.5	CB1100-12	1,150	5,100
1	Rem 209P	PB	20.5	CB1100-12	1,150	5,700
1	Fed 209A	SR7625	20.5	Win AA12SL	1,150	5,700
1	Win 209	PB	20.5	CB1100-12	1,150	5,900
1	Fed 209A	SR7625	22.0	CB1100-12	1,150	5,900
1	Win 209	SR7625	21.5	Win AA12SL	1,150	6,100
1	Rem 209P	SR7625	22.0	Win AA12SL	1,150	6,200
1	Rem 209P	Green Dot	18.0	Win AA12L	1,150	6,285
1	Rem 209P	PB	20.0	Rem TGT12	1,150	6,300
1	Rem 209P	Green Dot	18.0	Rem TGT12	1,150	6,600
1	Rem 209P	American Select	17.0	Rem TGT12	1,150	6,925
1	Rem 209P	Green Dot	18.5	CB1100-12	1,150	6,975
1	Win 209	PB	20.0	Fed 12S3	1,150	7,000
1	Rem 209P	700-X	16.0	CB1100-12	1,150	7,200
1	Win 209	700-X	16.0	CB1100-12	1,150	7,200
1	Rem 209P	PB	19.5	Win AA12SL	1,150	7,200
1	Rem 209P	Red Dot	16.5	CB1100-12	1,150	7,440
1	Rem 209P	American Select	17.0	Win AA12L	1,150	7,465
1	Fed 209A	PB	19.0	Win AA12SL	1,150	7,500
1	Fed 209A	700-X	15.5	Rem TGT12	1,150	8,100
1	Rem 209P	Red Dot	16.5	Win AA12L	1,150	8,120
1	Rem 209P	Red Dot	17.0	Rem TGT12	1,150	8,305
1	Fed 209A	700-X	15.5	Win AA12SL	1,150	8,600
1	Rem 209P	SR7625	23.0	CB1100-12	1,155	5,100
1	Rem 209P	SR7625	22.5	Rem TGT12	1,155	5,700
1	Fed 209A	PB	20.0	CB1100-12	1,155	6,600
1	Rem 209P	PB	20.0	Fed 12S3	1,155	7,100
1	Fed 209A	SR7625	22.0	Rem TGT12	1,160	6,300
1	Fed 209A	700-X	16.0	CB1100-12	1,160	7,900
1	Win 209	700-X	16.0	Win AA12SL	1,160	8,300
1	Win 209	International	20.2	Purple PC	1,180	6,500
1	CCI 209	International	19.0	Rem TGT12	1,180	6,800
1	CCI 209SC	International	19.5	Rem TGT12	1,180	6,800
1	Rem 209P	International	19.2	Purple PC	1,180	6,800
1	Rem 209P	International	20.2	Rem TGT12	1,180	6,800
1	Rem 209P	International	19.0	Win AA12SL	1,180	6,800

12

12 Gauge 2 ¾" Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93

Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Titewad	17.7	Purple PC	1,180	6,900
1	Win 209	Clays	18.1	Purple PC	1,180	7,000
1	CCI 209	Clays	18.3	Purple PC	1,180	7,100
1	Win 209	Clays	18.4	Windjammer	1,180	7,100
1	Fed 209A	International	18.4	Purple PC	1,180	7,100
1	Win 209	International	18.9	Rem TGT12	1,180	7,100
1	Win 209	International	18.4	Win AA12SL	1,180	7,100
1	Fed 209A	Titewad	17.2	Purple PC	1,180	7,200
1	Rem 209P	Clays	18.0	CB4100-12	1,180	7,200
1	CCI 209SC	International	18.7	Purple PC	1,180	7,200
1	CCI 209SC	International	18.7	Win AA12SL	1,180	7,200
1	Rem 209P	Clays	17.8	Purple PC	1,180	7,400
1	Rem 209P	Clays	17.9	Rem TGT12	1,180	7,400
1	CCI 209	International	18.6	Win AA12SL	1,180	7,400
1	Fed 209A	International	17.8	Win AA12SL	1,180	7,500
1	Rem 209P	Titegroup	16.4	Win AA12SL	1,180	7,700
1	Win 209	Titegroup	16.0	Rem TGT12	1,180	7,700
1	Rem 209P	Titegroup	16.4	Win AA12SL	1,180	7,700
1	Win 209	Titegroup	16.0	Rem TGT12	1,180	7,700
1	Rem 209P	Titewad	16.7	Rem TGT12	1,180	7,800
1	Rem 209P	Titegroup	16.1	Rem TGT12	1,180	7,900
1	Win 209	Titewad	17.1	CB4100-12	1,180	7,900
1	Win 209	Clays	17.6	Rem TGT12	1,180	7,900
1	Rem 209P	Titegroup	16.1	Rem TGT12	1,180	7,900
1	Fed 209A	International	18.2	Rem TGT12	1,180	7,900
1	CCI 209	WST	19.0	Win AA12SL	1,180	8,000
1	Win 209	Titegroup	16.3	Win AA12SL	1,180	8,100
1	Rem 209P	Titewad	17.0	CB4100-12	1,180	8,100
1	CCI 209SC	Clays	17.8	Rem TGT12	1,180	8,100
1	Rem 209P	Clays	17.6	Win AA12SL	1,180	8,100
1	Win 209	Titegroup	16.3	Win AA12SL	1,180	8,100
1	CCI 209	Titewad	17.0	Purple PC	1,180	8,200
1	Win 209	Clays	17.0	Win AA12SL	1,180	8,200
1	Win 209	WST	19.0	Fed 12S0	1,180	8,200
1	Fed 209A	Titewad	17.0	Win AA12SL	1,180	8,600
1	Win 209	Titewad	16.6	Rem TGT12	1,180	8,600
1	Fed 209A	Titewad	16.5	Rem TGT12	1,180	8,800
1	CCI 209	WST	18.5	Fed 12S0	1,180	8,800
1	Win 209	Titewad	16.5	Win AA12SL	1,180	8,900
1	CCI 209	Titewad	16.8	Win AA12L	1,180	9,000
1	CCI 209	Titewad	16.4	Rem TGT12	1,180	9,100
1	Fed 209A	Clays	17.0	Purple PC	1,180	9,100
1	Rem 209P	Titewad	16.7	Win AA12SL	1,180	9,200
1	CCI 209	Clays	16.6	Rem TGT12	1,180	9,600
1	CCI 209SC	Titewad	16.2	Win AA12SL	1,180	9,700
1	CCI 209SC	Clays	16.6	Win AA12SL	1,180	10,000
1	CCI 209	Clays	16.3	Win AA12SL	1,180	10,100
1	Fed 209A	Clays	16.5	Win AA12SL	1,180	10,800

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Rem 209P	PB	21.5	CB1100-12	1,190	6,200
1	Win 209	SR7625	23.0	Rem TGT12	1,190	6,300
1	Win 209	PB	21.0	Rem TGT12	1,190	6,800
1	Rem 209P	SR7625	22.5	Fed 12S3	1,190	6,900
1	Rem 209P	PB	20.5	Win AA12SL	1,190	7,700
1	Rem 209P	700-X	16.5	Rem TGT12	1,190	8,400
1	Win 209	SR7625	24.0	CB1100-12	1,195	5,500
1	Rem 209P	SR7625	23.5	Rem TGT12	1,195	6,200
1	Win 209	PB	21.5	CB1100-12	1,195	6,400
1	Fed 209A	SR7625	23.0	CB1100-12	1,195	6,500
1	Rem 209P	SR7625	23.0	Win AA12SL	1,195	6,800
1	Win 209	SR7625	23.0	Fed 12S3	1,195	6,800
1	Fed 209A	PB	21.0	CB1100-12	1,195	7,200
1	Win 209	PB	21.0	Rem TGT12	1,195	7,300
1	Win 209	PB	21.0	Fed 12S3	1,195	7,700
1	Rem 209P	700-X	17.0	CB1100-12	1,195	8,000
1	Win 209	700-X	17.0	CB1100-12	1,195	8,200
1	Win 209	700-X	16.5	Rem TGT12	1,195	8,700
1	Rem 209P	700-X	16.5	Win AA12SL	1,195	9,000
1	Rem 209P	SR7625	24.0	CB1100-12	1,200	5,500
1	Win 209	SR7625	23.0	Win AA12SL	1,200	6,700
1	Fed 209A	SR7625	23.0	Rem TGT12	1,200	6,900
1	Rem 209P	American Select	19.0	Rem TGT12	1,200	7,000
1	Rem 209P	Green Dot	20.5	Purple PC	1,200	7,000
1	Fed 209A	PB	21.0	Rem TGT12	1,200	7,400
1	Rem 209P	American Select	19.5	CB1100-12	1,200	7,500
1	Rem 209P	Green Dot	19.2	CB1100-12	1,200	7,500
1	Rem 209P	Green Dot	19.5	Green Duster	1,200	7,500
1	Rem 209P	American Select	19.0	Win AA12SL	1,200	7,600
1	Rem 209P	American Select	19.0	Green Duster	1,200	7,700
1	Rem 209P	PB	21.0	Fed 12S3	1,200	7,800
1	Rem 209P	American Select	19.5	Fed 12SO	1,200	7,900
1	Rem 209P	Red Dot	17.8	CB1100-12	1,200	8,000
1	Rem 209P	Green Dot	20.0	Rem TGT12	1,200	8,200
1	Fed 209A	PB	20.5	Win AA12SL	1,200	8,200
1	Rem 209P	Red Dot	18.5	Purple PC	1,200	8,300
1	Fed 209A	PB	20.5	Fed 12S3	1,200	8,300
1	Rem 209P	e3	16.9	Rem TGT12	1,200	8,550
1	Rem 209P	Green Dot	19.5	Fed 12SO	1,200	8,600
1	Rem 209P	Green Dot	19.5	Win AA12SL	1,200	8,600
1	Rem 209P	Red Dot	18.0	Rem TGT12	1,200	8,700
1	Rem 209P	Red Dot	18.0	Fed 12SO	1,200	9,000
1	Fed 209A	700-X	16.5	Win AA12SL	1,200	9,500
1	Rem 209P	Red Dot	18.0	Win AA12SL	1,200	9,600
1	Rem 209P	Red Dot	17.5	Green Duster	1,200	10,000
1	Fed 209A	SR7625	22.0	Win AA12SL	1,205	7,200
1	Fed 209A	SR7625	22.5	Fed 12S3	1,205	7,600
1	Fed 209A	700-X	17.0	CB1100-12	1,205	8,700

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	700-X	16.5	Rem TGT12	1,205	9,100
1	Win 209	700-X	17.0	Win AA12SL	1,205	9,300
1	Rem 209P	700-X	17.0	Fed 12S3	1,205	9,700
1	Rem 209P	PB	21.5	Rem TGT12	1,210	7,100
1	Win 209	700-X	17.0	Fed 12S3	1,210	10,100
1	Fed 209A	700-X	17.0	Fed 12S3	1,210	10,300
1	Win 209	International	21.3	Purple PC	1,235	7,500
1	CCI 209	Clays	19.5	Purple PC	1,235	7,700
1	Rem 209P	International	20.9	Rem TGT12	1,235	7,700
1	CCI 209SC	International	20.8	Rem TGT12	1,235	7,800
1	CCI 209	International	20.0	Rem TGT12	1,235	7,900
1	Rem 209P	International	20.5	Purple PC	1,235	7,900
1	Fed 209A	Titewad	18.4	Purple PC	1,235	8,000
1	Win 209	WST	19.5	Win AA12SL	1,235	8,000
1	Rem 209P	Clays	18.9	Rem TGT12	1,235	8,100
1	CCI 209SC	International	20.0	Purple PC	1,235	8,100
1	Rem 209P	International	20.2	Win AA12SL	1,235	8,100
1	Fed 209A	International	19.6	Purple PC	1,235	8,200
1	Win 209	International	20.2	Rem TGT12	1,235	8,200
1	Win 209	Clays	19.4	Purple PC	1,235	8,300
1	CCI 209SC	International	19.8	Win AA12SL	1,235	8,300
1	Win 209	Titewad	19.0	Purple PC	1,235	8,400
1	Rem 209P	Clays	19.2	CB4100-12	1,235	8,500
1	CCI 209	International	19.8	Win AA12SL	1,235	8,500
1	Win 209	Clays	19.5	Windjammer	1,235	8,600
1	Win 209	International	20.1	Win AA12SL	1,235	8,600
1	Rem 209P	Clays	19.1	Purple PC	1,235	8,800
1	Fed 209A	International	19.0	Win AA12SL	1,235	8,800
1	Rem 209P	Titegroup	17.3	Rem TGT12	1,235	8,900
1	Win 209	Titegroup	17.5	Rem TGT12	1,235	8,900
1	Rem 209P	Titegroup	17.3	Rem TGT12	1,235	8,900
1	Win 209	Titegroup	17.5	Rem TGT12	1,235	8,900
1	Win 209	WST	20.0	Fed 12S0	1,235	8,900
1	Fed 209A	International	19.2	Rem TGT12	1,235	9,000
1	CCI 209	WST	20.0	Win AA12SL	1,235	9,000
1	Rem 209P	Titegroup	17.6	Win AA12SL	1,235	9,100
1	Win 209	Titegroup	17.6	Win AA12SL	1,235	9,100
1	Rem 209P	Titegroup	17.6	Win AA12SL	1,235	9,100
1	Win 209	Titegroup	17.6	Win AA12SL	1,235	9,100
1	Win 209	Titewad	18.4	CB4100-12	1,235	9,200
1	Win 209	Clays	18.8	Rem TGT12	1,235	9,200
1	Rem 209P	Titewad	18.2	CB4100-12	1,235	9,300
1	Rem 209P	Clays	18.7	Win AA12SL	1,235	9,400
1	Win 209	Clays	18.4	Win AA12SL	1,235	9,500
1	Fio 616	Titewad	18.0	Windjammer	1,235	9,600
1	Rem 209P	Titewad	18.2	Rem TGT12	1,235	9,600
1	Win 209	Titewad	17.9	Rem TGT12	1,235	9,800
1	CCI 209	WST	19.5	Fed 12S0	1,235	9,800

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209SC	Clays	18.8	Rem TGT12	1,235	9,900
1	Fed 209A	Titewad	17.8	Rem TGT12	1,235	10,000
1	Rem 209P	Titewad	18.0	Win AA12SL	1,235	10,000
1	CCI 209	Titewad	18.0	Purple PC	1,235	10,100
1	Fed 209A	Titewad	18.2	Win AA12SL	1,235	10,100
1	Fed 209A	Clays	18.5	Purple PC	1,235	10,300
1	CCI 209	Titewad	17.7	Rem TGT12	1,235	10,500
1	CCI 209	Titewad	17.8	Win AA12L	1,235	10,500
1	CCI 209SC	Titewad	17.5	Win AA12SL	1,235	10,800
1	Win 209	Titewad	18.0	Win AA12SL	1,235	11,000
1	CCI 209	Clays	17.5	Win AA12SL	1,235	11,200
1	CCI 209SC	Clays	17.4	Win AA12SL	1,235	11,300
1	Fed 209A	Clays	17.7	Win AA12SL	1,235	11,300
1	CCI 209	Clays	18.2	Rem TGT12	1,235	11,400
1	Win 209	700-X	18.0	CB1100-12	1,240	9,200
1	Fed 209A	SR7625	24.0	Rem TGT12	1,245	7,400
1	Fed 209A	700-X	17.5	Rem TGT12	1,245	10,000
1	Rem 209P	SR7625	25.0	CB1100-12	1,250	5,900
1	Win 209	SR7625	25.5	CB1100-12	1,250	5,900
1	Win 209	PB	23.0	CB1100-12	1,250	7,100
1	Rem 209P	PB	23.0	CB1100-12	1,250	7,200
1	Win 209	SR7625	24.0	Win AA12SL	1,250	7,200
1	Rem 209P	PB	22.5	Rem TGT12	1,250	7,600
1	Win 209	SR7625	24.0	Fed 12S3	1,250	7,900
1	Fed 209A	SR7625	23.5	Fed 12S3	1,250	8,300
1	Rem 209P	700-X	18.0	Rem TGT12	1,250	9,500
1	Fed 209A	700-X	18.0	CB1100-12	1,250	9,600
1	Win 209	700-X	18.0	Win AA12SL	1,250	10,300
1	Rem 209P	700-X	18.0	Fed 12S3	1,250	10,600
1	Fed 209A	700-X	18.0	Fed 12S3	1,250	11,200
1	Rem 209P	SR7625	25.0	Rem TGT12	1,255	7,000
1	Fed 209A	SR7625	24.5	CB1100-12	1,255	7,400
1	Win 209	PB	22.5	Rem TGT12	1,255	7,700
1	Rem 209P	American Select	20.5	CB1100-12	1,255	8,000
1	Rem 209P	American Select	20.5	Rem TGT12	1,255	8,000
1	Fed 209A	PB	22.5	CB1100-12	1,255	8,000
1	Win 209	PB	22.5	Rem TGT12	1,255	8,100
1	Fed 209A	PB	22.5	Rem TGT12	1,255	8,200
1	Rem 209P	Green Dot	21.0	CB1100-12	1,255	8,300
1	Rem 209P	American Select	20.0	Green Duster	1,255	8,400
1	Rem 209P	Green Dot	21.0	Rem TGT12	1,255	8,500
1	Rem 209P	Green Dot	21.5	Purple PC	1,255	8,500
1	Rem 209P	American Select	20.5	Fed 12SO	1,255	8,600
1	Rem 209P	American Select	20.5	Win AA12SL	1,255	8,700
1	Win 209	PB	22.5	Fed 12S3	1,255	8,700
1	Rem 209P	Green Dot	22.0	Green Duster	1,255	8,800
1	Rem 209P	Red Dot	18.7	CB1100-12	1,255	8,800
1	Rem 209P	Green Dot	21.5	Win AA12SL	1,255	8,900

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Rem 209P	Red Dot	19.5	Purple PC	1,255	8,900
1	Fed 209A	PB	22.0	Win AA12SL	1,255	8,900
1	Rem 209P	Green Dot	21.5	Fed 12SO	1,255	9,300
1	Rem 209P	Red Dot	19.0	Rem TGT12	1,255	9,500
1	Rem 209P	e3	18.0	Rem TGT12	1,255	9,710
1	Win 209	700-X	18.0	Rem TGT12	1,255	9,800
1	Rem 209P	Red Dot	19.5	Win AA12SL	1,255	10,100
1	Rem 209P	700-X	18.0	Win AA12SL	1,255	10,500
1	Rem 209P	Red Dot	19.5	Fed 12SO	1,255	10,600
1	Rem 209P	Red Dot	18.5	Green Duster	1,255	10,900
1	Win 209	700-X	18.0	Fed 12S3	1,255	11,100
1	Win 209	SR7625	24.5	Rem TGT12	1,260	7,100
1	Rem 209P	SR7625	24.0	Fed 12S3	1,260	7,800
1	Rem 209P	SR7625	24.5	Win AA12SL	1,260	8,100
1	Rem 209P	PB	22.5	Fed 12S3	1,260	8,500
1	Fed 209A	SR7625	23.5	Win AA12SL	1,260	8,500
1	Fed 209A	PB	22.0	Fed 12S3	1,260	9,300
1	Rem 209P	700-X	18.5	CB1100-12	1,260	9,400
1	Fed 209A	700-X	18.0	Win AA12SL	1,260	10,800
1	Rem 209P	PB	22.5	Win AA12SL	1,265	8,700
1	Rem 209P	Green Dot	23.0	Win AA12F1	1,290	7,200
1	Rem 209P	Green Dot	22.0	Rem Fig 8	1,290	8,100
1	Rem 209P	Green Dot	22.5	Purple PC	1,290	8,200
1	Rem 209P	Green Dot	22.5	Rem TGT12	1,290	8,400
1	CCI 209	Clays	20.7	Purple PC	1,290	8,400
1	Rem 209P	American Select	22.5	CB1100-12	1,290	8,500
1	Rem 209P	Green Dot	22.0	CB1100-12	1,290	8,500
1	Win 209	International	22.4	Purple PC	1,290	8,500
1	Rem 209P	American Select	22.5	Rem TGT12	1,290	8,700
1	Rem 209P	Green Dot	22.0	Fed 12SO	1,290	8,700
1	Win 209	Green Dot	22.0	Rem R12L	1,290	8,700
1	Rem 209P	Clays	19.9	Rem TGT12	1,290	8,800
1	Rem 209P	International	21.7	Purple PC	1,290	8,900
1	Rem 209P	International	21.4	Rem TGT12	1,290	8,900
1	Rem 209P	Green Dot	22.5	Win AA12SL	1,290	9,000
1	CCI 209	International	21.0	Rem TGT12	1,290	9,000
1	CCI 209SC	International	21.2	Purple PC	1,290	9,000
1	CCI 209M	Green Dot	22.0	Rem R12L	1,290	9,100
1	Rem 209P	Red Dot	20.5	Purple PC	1,290	9,100
1	Rem 209P	Red Dot	20.5	Win AA12F1	1,290	9,100
1	Rem 209P	Red Dot	21.5	Rem Fig 8	1,290	9,100
1	Rem 209P	American Select	21.5	Win AA12SL	1,290	9,200
1	CCI 209SC	International	22.2	Rem TGT12	1,290	9,300
1	Rem 209P	International	21.3	Win AA12SL	1,290	9,300
1	Win 209	International	21.5	Rem TGT12	1,290	9,300
1	Rem 209P	Red Dot	19.7	CB1100-12	1,290	9,400
1	CCI 209SC	International	21.0	Win AA12SL	1,290	9,400
1	Fed 209A	International	20.9	Purple PC	1,290	9,400

Hull #24 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 93

Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Clays	20.6	Purple PC	1,290	9,500
1	CCI 209	International	21.0	Win AA12SL	1,290	9,500
1	Win 209	WST	21.0	Fed 12S0	1,290	9,700
1	Fed 209A	Titewad	20.0	Purple PC	1,290	9,800
1	Win 209	Titewad	20.2	Purple PC	1,290	9,800
1	Rem 209P	Clays	20.4	CB4100-12	1,290	9,800
1	Rem 209P	American Select	21.5	Fed 12S0	1,290	9,900
1	Rem 209P	Red Dot	20.5	Rem R12L	1,290	9,900
1	Win 209	Titegroup	18.9	Rem TGT12	1,290	10,000
1	Win 209	Titegroup	18.9	Rem TGT12	1,290	10,000
1	Fed 209A	International	20.2	Rem TGT12	1,290	10,000
1	Win 209	International	21.0	Win AA12SL	1,290	10,000
1	Win 209	WST	21.0	Win AA12SL	1,290	10,000
1	Win 209	Red Dot	20.0	Rem R12L	1,290	10,100
1	Rem 209P	Titegroup	18.6	Rem TGT12	1,290	10,100
1	Rem 209P	Clays	20.3	Purple PC	1,290	10,100
1	Rem 209P	Titegroup	18.6	Rem TGT12	1,290	10,100
1	CCI 209	WST	21.0	Win AA12SL	1,290	10,100
1	Win 209	Titegroup	18.9	Win AA12SL	1,290	10,200
1	Win 209	Titewad	19.6	CB4100-12	1,290	10,200
1	Win 209	Clays	20.6	Windjammer	1,290	10,200
1	Win 209	Titegroup	18.9	Win AA12SL	1,290	10,200
1	Fed 209A	International	20.3	Win AA12SL	1,290	10,200
1	CCI 209M	Red Dot	20.0	Rem R12L	1,290	10,300
1	Rem 209P	Red Dot	20.5	Win AA12SL	1,290	10,400
1	Rem 209P	Titegroup	18.8	Win AA12SL	1,290	10,400
1	Rem 209P	Titegroup	18.8	Win AA12SL	1,290	10,400
1	Rem 209P	Red Dot	20.0	Fed 12S0	1,290	10,500
1	CCI 209	Titewad	19.0	Purple PC	1,290	10,500
1	Win 209	Clays	20.1	Rem TGT12	1,290	10,500
1	Rem 209P	Titewad	19.5	CB4100-12	1,290	10,600
1	Rem 209P	Red Dot	21.0	Rem TGT12	1,290	10,700
1	Win 209	Clays	19.8	Win AA12SL	1,290	10,700
1	Fio 616	Titewad	19.2	Windjammer	1,290	10,800
1	CCI 209	WST	20.5	Fed 12S0	1,290	10,800
1	Rem 209P	e3	19.0	Rem TGT12	1,290	10,850
1	Rem 209P	Clays	19.9	Win AA12SL	1,290	10,900
1	Fed 209A	Titewad	19.4	Win AA12SL	1,290	11,000
1	Win 209	Titewad	19.2	Rem TGT12	1,290	11,000
1	CCI 209SC	Clays	20.5	Rem TGT12	1,290	11,100
1	Rem 209P	Titewad	19.4	Rem TGT12	1,290	11,300
1	Rem 209P	Titewad	19.0	Win AA12SL	1,290	11,300
1	CCI 209	Titewad	19.0	Rem TGT12	1,290	11,400
1	CCI 209SC	Titewad	18.5	Win AA12SL	1,290	11,400
1	Win 209	International	23.5	Purple PC	1,345	9,600
1	Rem 209P	International	23.0	Purple PC	1,345	9,900
1	CCI 209SC	International	22.5	Purple PC	1,345	10,000
1	CCI 209	International	22.0	Rem TGT12	1,345	10,100

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209SC	International	22.8	Rem TGT12	1,345	10,300
1	Win 209	International	22.8	Rem TGT12	1,345	10,300
1	Rem 209P	International	22.4	Win AA12SL	1,345	10,500
1	CCI 209	International	22.3	Win AA12SL	1,345	10,600
1	CCI 209SC	International	22.2	Win AA12SL	1,345	10,600
1	Fed 209A	International	22.2	Purple PC	1,345	10,600
1	Win 209	Titegroup	20.3	Rem TGT12	1,345	11,000
1	Win 209	Titegroup	20.3	Rem TGT12	1,345	11,000
1	Fed 209A	International	21.3	Rem TGT12	1,345	11,100
1	Rem 209P	Titegroup	19.9	Rem TGT12	1,345	11,200
1	Rem 209P	Titegroup	19.9	Rem TGT12	1,345	11,200
1	Win 209	Titegroup	20.5	Win AA12SL	1,345	11,300
1	Win 209	Titegroup	20.5	Win AA12SL	1,345	11,300
1	Fed 209A	International	21.5	Win AA12SL	1,345	11,500
1 1/8	Rem 209P	American Select	15.0	Rem Fig 8	1,000	6,500
1 1/8	Rem 209P	Red Dot	14.5	Rem Fig 8	1,000	7,200
1 1/8	CCI 209	International	19.2	Windjammer	1,090	6,100
1 1/8	Win 209	SR7625	21.0	CB1118-12	1,090	6,200
1 1/8	Win 209	SR7625	21.0	Rem RXP12	1,090	6,200
1 1/8	Rem 209P	PB	19.5	CB1118-12	1,090	6,400
1 1/8	CCI 209	Clays	16.6	Windjammer	1,090	6,400
1 1/8	CCI 209SC	Clays	16.0	Rem Fig 8	1,090	6,600
1 1/8	Win 209	SR7625	20.5	Fed 12S3	1,090	6,700
1 1/8	Win 209	800-X	19.0	Fed 12S3	1,090	6,800
1 1/8	CCI 209	International	17.9	Red PC	1,090	6,800
1 1/8	Rem 209P	American Select	17.5	CB3118-12	1,090	6,900
1 1/8	Rem 209P	American Select	18.0	Windjammer	1,090	6,900
1 1/8	Fed 209A	SR7625	20.0	CB1118-12	1,090	6,900
1 1/8	Win 209	800-X	19.0	Win AA12	1,090	6,900
1 1/8	Rem 209P	Clays	16.9	Rem Fig 8	1,090	6,900
1 1/8	Fio 616	International	17.3	Windjammer	1,090	6,900
1 1/8	Rem 209P	International	17.6	Fed 12S3	1,090	6,900
1 1/8	Win 209	International	17.8	Hor Versalite	1,090	6,900
1 1/8	Rem 209P	American Select	17.5	Red PC	1,090	7,000
1 1/8	Win 209	SR7625	20.5	Win AA12	1,090	7,000
1 1/8	Rem 209P	International	18.3	Win AA12	1,090	7,000
1 1/8	Rem 209P	American Select	17.5	Rem Fig 8	1,090	7,100
1 1/8	Rem 209P	SR7625	20.0	Win AA12	1,090	7,100
1 1/8	Win 209	International	17.0	Win AA12	1,090	7,100
1 1/8	CCI 209SC	International	18.0	Rem Fig 8	1,090	7,200
1 1/8	Rem 209P	American Select	17.0	Win WT12	1,090	7,300
1 1/8	Rem 209P	Green Dot	18.0	Windjammer	1,090	7,300
1 1/8	Rem 209P	International	17.6	Red PC	1,090	7,300
1 1/8	CCI 209M	Green Dot	18.0	Red PC	1,090	7,400
1 1/8	CCI 209	Clays	16.8	Rem Fig 8	1,090	7,400
1 1/8	CCI 209	International	17.8	Rem Fig 8	1,090	7,400
1 1/8	Win 209	International	17.7	Lage Uniwad	1,090	7,400
1 1/8	Rem 209P	American Select	17.0	Rem RXP12	1,090	7,500

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12
12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	CCI 209SC	International	17.6	Windjammer	1,090	7,500
1 1/8	CCI 209M	Green Dot	18.0	Windjammer	1,090	7,600
1 1/8	Rem 209P	700-X	15.5	Windjammer	1,090	7,600
1 1/8	Win 209	Clays	15.8	Hor Versalite	1,090	7,600
1 1/8	Fed 209A	International	16.9	Windjammer	1,090	7,600
1 1/8	Win 209	International	17.7	Red PC	1,090	7,600
1 1/8	Rem 209P	Clays	16.6	Win AA12	1,090	7,700
1 1/8	Win 209	Clays	16.8	Windjammer	1,090	7,700
1 1/8	Rem 209P	International	17.5	Hawk	1,090	7,700
1 1/8	Win 209	International	17.7	Hawk	1,090	7,700
1 1/8	Rem 209P	Green Dot	17.5	CB3118-12	1,090	7,755
1 1/8	Win 209	Clays	16.5	Red PC	1,090	7,800
1 1/8	CCI 209	International	17.1	Win AA12	1,090	7,800
1 1/8	CCI 209SC	International	17.6	Red PC	1,090	7,800
1 1/8	Ched 209	International	17.6	Rem Fig 8	1,090	7,800
1 1/8	Rem 209P	Red Dot	16.5	Windjammer	1,090	7,900
1 1/8	CCI 209SC	International	17.1	Win AA12	1,090	7,900
1 1/8	Fio 616	International	17.3	Rem Fig 8	1,090	7,900
1 1/8	Win 209	International	17.5	Rem Fig 8	1,090	7,900
1 1/8	Win 209	International	17.0	Trapper	1,090	7,900
1 1/8	Rem 209P	American Select	17.0	Blue Duster	1,090	8,000
1 1/8	Win 209	Titewad	15.8	Red PC	1,090	8,000
1 1/8	Rem 209P	Titegroup	14.9	Win AA12	1,090	8,000
1 1/8	Win 209	Titegroup	15.1	Rem Fig 8	1,090	8,000
1 1/8	Ched 209	International	17.1	Win AA12	1,090	8,000
1 1/8	Rem 209P	Titegroup	14.9	Win AA12	1,090	8,000
1 1/8	Win 209	Titegroup	15.1	Rem Fig 8	1,090	8,000
1 1/8	Rem 209P	Green Dot	18.0	Win WT12	1,090	8,070
1 1/8	Rem 209P	American Select	17.0	Win AA12	1,090	8,100
1 1/8	Ched 209	Clays	15.7	Windjammer	1,090	8,100
1 1/8	Fio 616	Clays	15.9	Windjammer	1,090	8,100
1 1/8	Rem 209P	Clays	16.3	Windjammer	1,090	8,100
1 1/8	Win 209	Clays	16.2	Win AA12	1,090	8,100
1 1/8	Fed 209A	International	17.1	Red PC	1,090	8,100
1 1/8	Rem 209P	American Select	17.5	Fed 12S3	1,090	8,200
1 1/8	Rem 209P	Green Dot	17.5	Blue Duster	1,090	8,200
1 1/8	Rem 209P	Clays	16.5	Red PC	1,090	8,200
1 1/8	Rem 209P	Titegroup	14.9	Rem Fig 8	1,090	8,200
1 1/8	Fed 209A	International	16.9	Rem Fig 8	1,090	8,200
1 1/8	Win 209	International	19.4	Windjammer	1,090	8,200
1 1/8	Rem 209P	Titegroup	14.9	Rem Fig 8	1,090	8,200
1 1/8	CCI 209M	Red Dot	16.5	Windjammer	1,090	8,300
1 1/8	Rem 209P	Red Dot	16.5	Rem Fig 8	1,090	8,300
1 1/8	Win 209	Titegroup	14.7	Win AA12	1,090	8,300
1 1/8	Fed 209A	International	16.7	Win AA12	1,090	8,300
1 1/8	Fio 616	International	17.2	Win AA12	1,090	8,300
1 1/8	Win 209	Titegroup	14.7	Win AA12	1,090	8,300
1 1/8	CCI 209M	Green Dot	18.0	Rem Fig 8	1,090	8,400

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	CCI 209	Clays	16.0	Red PC	1,090	8,400
1 1/8	Win 209	Clays	16.4	Rem Fig 8	1,090	8,400
1 1/8	Rem 209P	International	17.3	Trapper	1,090	8,400
1 1/8	Rem 209P	Green Dot	18.0	Win AA12	1,090	8,500
1 1/8	Rem 209P	Green Dot	18.5	Rem Fig 8	1,090	8,500
1 1/8	CCI 209M	Green Dot	17.5	Fed 12S3	1,090	8,500
1 1/8	CCI 209M	Green Dot	17.5	Fio FTW1	1,090	8,500
1 1/8	Rem 209P	Red Dot	16.5	Fio FTW1	1,090	8,500
1 1/8	Rem 209P	700-X	15.0	Win AA12	1,090	8,500
1 1/8	CCI 209	Clays	15.9	Win AA12	1,090	8,500
1 1/8	CCI 209M	Green Dot	17.5	Rem RXP12	1,090	8,600
1 1/8	Rem 209P	Red Dot	16.2	CB3118-12	1,090	8,600
1 1/8	Rem 209P	Titewad	15.5	Red PC	1,090	8,600
1 1/8	Fio 616	Clays	15.8	Rem Fig 8	1,090	8,600
1 1/8	Win 209	Clays	15.8	Hawk	1,090	8,600
1 1/8	Rem 209P	Green Dot	18.0	Rem RXP12	1,090	8,700
1 1/8	CCI 209M	Green Dot	17.0	Win AA12	1,090	8,700
1 1/8	Rem 209P	Red Dot	16.0	Rem RXP12	1,090	8,700
1 1/8	Rem 209P	Red Dot	16.5	Red PC	1,090	8,700
1 1/8	Win 209	Titewad	15.4	Win AA12	1,090	8,700
1 1/8	CCI 209SC	Clays	15.7	Red PC	1,090	8,700
1 1/8	Win 209	Clays	16.6	Lage Uniwad	1,090	8,800
1 1/8	Win 209	Red Dot	16.5	Rem Fig 8	1,090	8,900
1 1/8	Fed 209A	Clays	15.8	Red PC	1,090	8,900
1 1/8	Rem 209P	Red Dot	15.5	Win WT12	1,090	8,985
1 1/8	Fio 616	Red Dot	16.5	Rem Fig 8	1,090	9,000
1 1/8	Fed 209A	Titewad	15.3	Windjammer	1,090	9,000
1 1/8	Rem 209P	Titewad	15.3	Windjammer	1,090	9,000
1 1/8	Rem 209P	Clays	15.5	Hawk	1,090	9,000
1 1/8	CCI 209M	Red Dot	16.5	Rem Fig 8	1,090	9,100
1 1/8	Rem 209P	Titewad	15.2	Rem Fig 8	1,090	9,100
1 1/8	Win 209	Titewad	16.1	Windjammer	1,090	9,100
1 1/8	Ched 209	Clays	16.0	Rem Fig 8	1,090	9,100
1 1/8	Fio 616	Clays	15.8	Win AA12	1,090	9,100
1 1/8	CCI 209M	Red Dot	16.5	Red PC	1,090	9,200
1 1/8	Fed 209A	Titewad	15.5	Red PC	1,090	9,200
1 1/8	Win 209	Titewad	15.8	Rem Fig 8	1,090	9,200
1 1/8	Win 209	Clays	16.2	Trapper	1,090	9,200
1 1/8	CCI 209M	Red Dot	16.0	Rem RXP12	1,090	9,300
1 1/8	CCI 209SC	Clays	16.0	Win AA12	1,090	9,300
1 1/8	Rem 209P	Red Dot	16.0	Win AA12	1,090	9,400
1 1/8	Ched 209	Titewad	15.5	Windjammer	1,090	9,400
1 1/8	Fio 616	Titewad	15.0	Win AA12	1,090	9,400
1 1/8	Rem 209P	Clays	15.9	Trapper	1,090	9,400
1 1/8	Win 209	Titewad	15.2	Hawk	1,090	9,500
1 1/8	Ched 209	Clays	15.5	Win AA12	1,090	9,500
1 1/8	Fed 209A	Clays	15.8	Rem Fig 8	1,090	9,500
1 1/8	Fed 209A	Titewad	15.2	Rem Fig 8	1,090	9,600

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Titewad	16.0	Fed 12S3	1,090	9,600
1 1/8	Rem 209P	Red Dot	16.0	Blue Duster	1,090	9,700
1 1/8	CCI 209M	Red Dot	16.5	Fio FTW1	1,090	9,700
1 1/8	Rem 209P	Titewad	15.1	Win AA12	1,090	9,700
1 1/8	CCI 209M	Red Dot	16.0	Win AA12	1,090	9,800
1 1/8	Fed 209A	Titewad	15.2	Win AA12	1,090	9,800
1 1/8	Win 209	Titewad	15.1	Trapper	1,090	9,900
1 1/8	Fed 209A	Clays	15.5	Win AA12	1,090	9,900
1 1/8	CCI 209SC	Titewad	15.0	Windjammer	1,090	10,000
1 1/8	Fio 616	Titewad	15.0	Rem Fig 8	1,090	10,000
1 1/8	CCI 209M	Red Dot	16.0	Fed 12S3	1,090	10,100
1 1/8	CCI 209SC	Titewad	15.0	Win AA12	1,090	10,100
1 1/8	CCI 209	Titewad	15.5	Red PC	1,090	10,200
1 1/8	Rem 209P	Titewad	15.0	Trapper	1,090	10,200
1 1/8	Rem 209P	Red Dot	16.0	Fed 12S3	1,090	10,300
1 1/8	Ched 209	Titewad	15.3	Rem Fig 8	1,090	10,400
1 1/8	Ched 209	Titewad	15.0	Win AA12	1,090	10,400
1 1/8	CCI 209	Titewad	15.0	Rem Fig 8	1,090	10,600
1 1/8	Fio 616	Titewad	15.0	Fio TL1	1,090	10,700
1 1/8	Win 209	SR7625	21.5	Windjammer	1,095	5,900
1 1/8	Rem 209P	SR7625	21.5	Windjammer	1,095	6,000
1 1/8	CCI 209	800-X	20.0	Windjammer	1,095	6,000
1 1/8	CCI 209	800-X	19.5	CB1118-12	1,095	6,200
1 1/8	Win 209	800-X	20.0	Windjammer	1,095	6,200
1 1/8	Rem 209P	SR7625	20.5	CB1118-12	1,095	6,400
1 1/8	Rem 209P	SR7625	21.0	Rem RXP12	1,095	6,500
1 1/8	CCI 209	800-X	19.5	Rem Fig 8	1,095	6,500
1 1/8	Win 209	800-X	19.5	Rem Fig 8	1,095	6,500
1 1/8	Win 209	PB	19.5	CB3118-12	1,095	6,800
1 1/8	Win 209	PB	19.5	Rem Fig 8	1,095	6,900
1 1/8	Fed 209A	SR7625	20.5	Rem RXP12	1,095	7,200
1 1/8	Fed 209A	800-X	19.0	Win AA12	1,095	7,200
1 1/8	Fed 209A	SR7625	20.0	Fed 12S3	1,095	7,300
1 1/8	Win 209	700-X	15.5	CB1118-12	1,095	7,700
1 1/8	Win 209	PB	19.0	Fed 12S4	1,095	7,700
1 1/8	Rem 209P	700-X	15.5	Rem Fig 8	1,095	8,100
1 1/8	Win 209	700-X	15.5	Rem Fig 8	1,095	8,500
1 1/8	Rem 209P	700-X	15.0	Fed 12S3	1,095	8,900
1 1/8	Fed 209A	700-X	15.0	Fed 12S3	1,095	9,300
1 1/8	Rem 209P	PB	20.0	Windjammer	1,100	6,300
1 1/8	Win 209	800-X	19.5	CB1118-12	1,100	6,500
1 1/8	Win 209	PB	20.0	CB1118-12	1,100	6,700
1 1/8	Fed 209A	PB	19.5	Windjammer	1,100	6,800
1 1/8	Rem 209P	PB	20.0	Rem Fig 8	1,100	6,800
1 1/8	Fed 209A	800-X	19.5	Rem Fig 8	1,100	6,900
1 1/8	CCI 209	800-X	19.5	Fed 12S3	1,100	7,000
1 1/8	Fed 209A	PB	19.0	CB1118-12	1,100	7,300
1 1/8	Fed 209A	800-X	19.0	Fed 12S3	1,100	7,300

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	PB	19.0	Fed 12S4	1,100	7,700
1 1/8	Win 209	PB	19.0	Win AA12	1,100	7,700
1 1/8	Fed 209A	SR7625	19.5	Win AA12	1,100	7,900
1 1/8	Win 209	700-X	15.5	Windjammer	1,100	8,000
1 1/8	Fed 209A	PB	18.5	Win AA12	1,100	8,200
1 1/8	Win 209	700-X	15.5	Fed 12S3	1,100	9,000
1 1/8	Fed 209A	700-X	15.0	Win AA12	1,100	9,500
1 1/8	Fed 209A	SR7625	21.0	Windjammer	1,105	6,500
1 1/8	Win 209	PB	20.0	Windjammer	1,105	6,700
1 1/8	Fed 209A	800-X	19.5	CB1118-12	1,105	6,800
1 1/8	Fed 209A	PB	19.5	CB3118-12	1,105	7,300
1 1/8	Rem 209P	PB	19.5	Win AA12	1,105	7,300
1 1/8	Fed 209A	PB	18.5	Fed 12S4	1,105	8,400
1 1/8	Fed 209A	700-X	15.5	Rem Fig 8	1,105	8,900
1 1/8	Win 209	700-X	15.5	Win AA12	1,105	9,300
1 1/8	Fed 209A	800-X	20.0	Windjammer	1,110	6,500
1 1/8	Rem 209P	SR7625	21.0	Fed 12S3	1,110	7,200
1 1/8	Fed 209A	PB	19.5	Rem Fig 8	1,110	7,500
1 1/8	Rem 209P	700-X	15.5	CB1118-12	1,110	8,000
1 1/8	Fed 209A	700-X	15.5	Windjammer	1,110	8,400
1 1/8	Fed 209A	700-X	15.5	CB1118-12	1,110	8,500
1 1/8	Win 209	800-X	20.0	Fed 12S3	1,135	7,500
1 1/8	Rem 209P	700-X	16.5	Windjammer	1,135	8,400
1 1/8	Fed 209A	700-X	16.0	Fed 12S3	1,135	10,200
1 1/8	Win 209	SR7625	22.5	Windjammer	1,140	6,500
1 1/8	Rem 209P	PB	21.0	Windjammer	1,140	6,900
1 1/8	Win 209	PB	21.0	CB1118-12	1,140	7,200
1 1/8	Win 209	800-X	20.5	Rem Fig 8	1,140	7,200
1 1/8	Fed 209A	800-X	20.5	Rem Fig 8	1,140	7,500
1 1/8	CCI 209	800-X	20.5	Fed 12S3	1,140	7,600
1 1/8	Fed 209A	PB	20.5	CB3118-12	1,140	7,800
1 1/8	Win 209	800-X	20.0	Win AA12	1,140	7,800
1 1/8	Fed 209A	800-X	20.0	Fed 12S3	1,140	8,000
1 1/8	Fed 209A	SR7625	21.0	Fed 12S3	1,140	8,100
1 1/8	Rem 209P	PB	20.0	Fed 12S4	1,140	8,400
1 1/8	Win 209	PB	20.0	Win AA12	1,140	8,400
1 1/8	Fed 209A	SR7625	20.5	Win AA12	1,140	8,500
1 1/8	Fed 209A	PB	19.5	Fed 12S4	1,140	8,800
1 1/8	Rem 209P	700-X	16.5	Rem Fig 8	1,140	9,000
1 1/8	Win 209	700-X	16.5	Rem Fig 8	1,140	9,400
1 1/8	Rem 209P	700-X	16.0	Win AA12	1,140	9,600
1 1/8	CCI 209	International	19.8	Windjammer	1,145	6,500
1 1/8	Rem 209P	Green Dot	19.0	Win AA12	1,145	6,700
1 1/8	CCI 209	800-X	21.0	Windjammer	1,145	6,700
1 1/8	Win 209	800-X	21.0	Windjammer	1,145	6,900
1 1/8	Rem 209P	International	19.6	Rem Fig 8	1,145	7,000
1 1/8	CCI 209	Green Dot	19.5	Rem Fig 8	1,145	7,100
1 1/8	Win 209	800-X	20.5	CB1118-12	1,145	7,200

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Green Dot	19.0	Rem Fig 8	1,145	7,300
1 1/8	Win 209	PB	21.0	Windjammer	1,145	7,300
1 1/8	Fed 209A	PB	20.5	Windjammer	1,145	7,500
1 1/8	CCI 209	Clays	18.0	Windjammer	1,145	7,500
1 1/8	Rem 209P	American Select	19.0	Rem Fig 8	1,145	7,600
1 1/8	Rem 209P	Green Dot	19.0	Red PC	1,145	7,600
1 1/8	Rem 209P	International	18.8	Win AA12	1,145	7,600
1 1/8	CCI 209M	Green Dot	19.0	Red PC	1,145	7,700
1 1/8	Rem 209P	Green Dot	19.0	Rem RXP12	1,145	7,700
1 1/8	Fio 616	Green Dot	19.0	Rem Fig 8	1,145	7,800
1 1/8	Rem 209P	Green Dot	19.5	Windjammer	1,145	7,800
1 1/8	Win 209	SR7625	22.0	Fed 12S3	1,145	7,800
1 1/8	Rem 209P	International	18.3	Fed 12S3	1,145	7,800
1 1/8	Win 209	International	18.4	Hor Versalite	1,145	7,800
1 1/8	Rem 209P	American Select	19.0	Windjammer	1,145	7,900
1 1/8	CCI 209M	Green Dot	19.5	Windjammer	1,145	7,900
1 1/8	Rem 209P	Clays	18.0	Rem Fig 8	1,145	7,900
1 1/8	CCI 209SC	International	19.0	Rem Fig 8	1,145	7,900
1 1/8	CCI 209M	Green Dot	19.0	Hor Versalite	1,145	8,000
1 1/8	Rem 209P	Green Dot	19.0	Hor Versalite	1,145	8,000
1 1/8	Rem 209P	Green Dot	19.0	Lage Uniwad	1,145	8,000
1 1/8	Rem 209P	PB	20.5	Win AA12	1,145	8,000
1 1/8	Fed 209A	800-X	20.0	Win AA12	1,145	8,000
1 1/8	Win 209	Green Dot	19.0	Rem Fig 8	1,145	8,100
1 1/8	CCI 209SC	Clays	17.0	Rem Fig 8	1,145	8,100
1 1/8	Rem 209P	American Select	19.0	Red PC	1,145	8,200
1 1/8	CCI 209	International	19.0	Red PC	1,145	8,200
1 1/8	Rem 209P	American Select	18.5	Rem RXP12	1,145	8,300
1 1/8	Rem 209P	Green Dot	19.5	Win WT12	1,145	8,300
1 1/8	Rem 209P	American Select	19.0	CB3118-12	1,145	8,400
1 1/8	Fio 616	International	18.7	Windjammer	1,145	8,400
1 1/8	CCI 209	Red Dot	17.5	Rem Fig 8	1,145	8,600
1 1/8	CCI 209SC	International	18.8	Windjammer	1,145	8,600
1 1/8	Ched 209	International	18.8	Windjammer	1,145	8,600
1 1/8	Rem 209P	International	18.9	Red PC	1,145	8,600
1 1/8	Win 209	International	19.0	Lage Uniwad	1,145	8,600
1 1/8	Win 209	International	19.0	Red PC	1,145	8,600
1 1/8	Win 209	International	18.4	Win AA12	1,145	8,600
1 1/8	Rem 209P	Green Dot	19.0	CB3118-12	1,145	8,700
1 1/8	Win 209	700-X	16.5	CB1118-12	1,145	8,700
1 1/8	CCI 209M	Green Dot	19.0	Rem Fig 8	1,145	8,800
1 1/8	Rem 209P	Green Dot	19.0	Fed 12S3	1,145	8,800
1 1/8	Rem 209P	Green Dot	19.5	Fio FTW1	1,145	8,800
1 1/8	Rem 209P	Red Dot	17.0	CB3118-12	1,145	8,800
1 1/8	Rem 209P	Red Dot	18.5	Win WT12	1,145	8,800
1 1/8	CCI 209	International	19.0	Rem Fig 8	1,145	8,800
1 1/8	Rem 209P	American Select	18.0	Blue Duster	1,145	8,900
1 1/8	CCI 209SC	American Select	18.5	Rem Fig 8	1,145	8,900

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93

Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	American Select	18.5	Win WT12	1,145	8,900
1 1/8	CCI 209M	Green Dot	19.0	Fed 12S3	1,145	8,900
1 1/8	Fio 616	Red Dot	17.5	Rem Fig 8	1,145	8,900
1 1/8	Rem 209P	Red Dot	17.5	Rem RXP12	1,145	8,900
1 1/8	Rem 209P	Red Dot	17.5	Windjammer	1,145	8,900
1 1/8	Win 209	Titegroup	16.1	Rem Fig 8	1,145	8,900
1 1/8	CCI 209	International	18.3	Win AA12	1,145	8,900
1 1/8	Ched 209	International	18.7	Rem Fig 8	1,145	8,900
1 1/8	Fed 209A	International	18.2	Windjammer	1,145	8,900
1 1/8	Rem 209P	International	18.7	Hawk	1,145	8,900
1 1/8	Rem 209P	International	18.4	Hor Versalite	1,145	8,900
1 1/8	Win 209	International	20.1	Windjammer	1,145	8,900
1 1/8	Win 209	Titegroup	16.1	Rem Fig 8	1,145	8,900
1 1/8	Rem 209P	American Select	18.0	Win AA12	1,145	9,000
1 1/8	Win 209	American Select	18.5	Rem Fig 8	1,145	9,000
1 1/8	Rem 209P	Green Dot	18.5	Blue Duster	1,145	9,000
1 1/8	CCI 209M	Red Dot	17.0	Windjammer	1,145	9,000
1 1/8	Rem 209P	Red Dot	17.5	Hor Versalite	1,145	9,000
1 1/8	Rem 209P	Red Dot	17.5	Red PC	1,145	9,000
1 1/8	Rem 209P	Clays	17.7	Win AA12	1,145	9,000
1 1/8	Fio 616	International	18.5	Rem Fig 8	1,145	9,000
1 1/8	Win 209	International	18.9	Hawk	1,145	9,000
1 1/8	Win 209	International	18.6	Rem Fig 8	1,145	9,000
1 1/8	Rem 209P	American Select	18.5	Fed 12S3	1,145	9,100
1 1/8	CCI 209M	Green Dot	19.0	Rem RXP12	1,145	9,100
1 1/8	CCI 209M	Red Dot	17.0	Hor Versalite	1,145	9,100
1 1/8	Win 209	Clays	17.2	Hor Versalite	1,145	9,100
1 1/8	Win 209	Clays	18.1	Windjammer	1,145	9,100
1 1/8	CCI 209SC	International	18.9	Red PC	1,145	9,100
1 1/8	Win 209	International	18.5	Trapper	1,145	9,100
1 1/8	Rem 209P	Titegroup	16.0	Rem Fig 8	1,145	9,100
1 1/8	Fed 209A	American Select	18.5	Rem Fig 8	1,145	9,200
1 1/8	Rem 209P	Red Dot	18.0	Rem Fig 8	1,145	9,200
1 1/8	Rem 209P	Titegroup	15.8	Win AA12	1,145	9,200
1 1/8	CCI 209SC	International	18.3	Win AA12	1,145	9,200
1 1/8	Ched 209	International	18.3	Win AA12	1,145	9,200
1 1/8	Fed 209A	International	18.3	Red PC	1,145	9,200
1 1/8	Rem 209P	International	18.4	Trapper	1,145	9,200
1 1/8	Rem 209P	Titegroup	15.8	Win AA12	1,145	9,200
1 1/8	CCI 209M	Green Dot	19.5	Fio FTW1	1,145	9,300
1 1/8	CCI 209M	Red Dot	17.5	Rem Fig 8	1,145	9,300
1 1/8	CCI 209	Clays	18.0	Rem Fig 8	1,145	9,300
1 1/8	Fed 209A	International	18.0	Rem Fig 8	1,145	9,300
1 1/8	CCI 209M	Green Dot	19.0	Win AA12	1,145	9,400
1 1/8	CCI 209M	Red Dot	17.0	Red PC	1,145	9,400
1 1/8	Win 209	Clays	17.7	Red PC	1,145	9,400
1 1/8	Win 209	Titegroup	15.8	Win AA12	1,145	9,400
1 1/8	Win 209	Titegroup	15.8	Win AA12	1,145	9,400

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12
12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	CCI 209SC	Green Dot	19.5	Fed 12S3	1,145	9,500
1 1/8	Win 209	Red Dot	18.0	Rem Fig 8	1,145	9,500
1 1/8	Fed 209A	Titewad	16.3	Windjammer	1,145	9,500
1 1/8	Win 209	Titewad	17.1	Red PC	1,145	9,500
1 1/8	Ched 209	Clays	17.0	Windjammer	1,145	9,500
1 1/8	Fio 616	Clays	17.2	Windjammer	1,145	9,500
1 1/8	Rem 209P	Clays	17.5	Windjammer	1,145	9,500
1 1/8	Fio 616	International	18.3	Win AA12	1,145	9,500
1 1/8	Fed 209A	Green Dot	20.0	Windjammer	1,145	9,600
1 1/8	CCI 209M	Red Dot	17.0	Rem RXP12	1,145	9,600
1 1/8	Fed 209A	International	17.9	Win AA12	1,145	9,600
1 1/8	Rem 209P	Red Dot	17.5	Fio FTW1	1,145	9,700
1 1/8	Fed 209A	Titewad	16.5	Red PC	1,145	9,700
1 1/8	Win 209	Clays	17.5	Rem Fig 8	1,145	9,700
1 1/8	Win 209	Clays	17.3	Win AA12	1,145	9,700
1 1/8	Rem 209P	Red Dot	17.0	Blue Duster	1,145	9,800
1 1/8	CCI 209SC	Red Dot	18.5	Windjammer	1,145	9,800
1 1/8	Win 209	700-X	16.5	Fed 12S3	1,145	9,800
1 1/8	CCI 209	Clays	17.4	Red PC	1,145	9,800
1 1/8	Fed 209A	Green Dot	19.0	Fed 12S3	1,145	9,900
1 1/8	CCI 209SC	Green Dot	20.5	Rem Fig 8	1,145	9,900
1 1/8	CCI 209M	Red Dot	17.0	Fio FTW1	1,145	9,900
1 1/8	Rem 209P	Red Dot	17.5	Lage Uniwad	1,145	9,900
1 1/8	CCI 209SC	Clays	17.6	Windjammer	1,145	9,900
1 1/8	Rem 209P	Clays	17.7	Red PC	1,145	9,900
1 1/8	Rem 209STS	e3	16.5	Rem Fig 8	1,145	9,930
1 1/8	Fed 209A	Green Dot	19.5	Red PC	1,145	10,000
1 1/8	Win 209	Titewad	16.7	Win AA12	1,145	10,000
1 1/8	Fed 209A	Clays	17.3	Windjammer	1,145	10,000
1 1/8	Win 209	Clays	17.2	Hawk	1,145	10,000
1 1/8	Fed 209A	Green Dot	19.5	Rem Fig 8	1,145	10,100
1 1/8	Fed 209A	Red Dot	16.5	Fed 12S3	1,145	10,100
1 1/8	Rem 209P	Red Dot	17.0	Win AA12	1,145	10,100
1 1/8	Rem 209P	Red Dot	18.0	Fed 12S3	1,145	10,100
1 1/8	Rem 209P	Titewad	16.5	Rem Fig 8	1,145	10,100
1 1/8	CCI 209SC	Clays	17.0	Red PC	1,145	10,100
1 1/8	CCI 209	WST	18.5	Rem Fig-8	1,145	10,200
1 1/8	CCI 209M	Red Dot	16.5	Win AA12	1,145	10,200
1 1/8	Win 209	700-X	16.5	Win AA12	1,145	10,200
1 1/8	Rem 209P	Titewad	16.7	Red PC	1,145	10,200
1 1/8	Rem 209P	Titewad	16.5	Windjammer	1,145	10,200
1 1/8	Fed 209A	Clays	16.6	Red PC	1,145	10,200
1 1/8	Fed 209A	Red Dot	16.5	Rem Fig 8	1,145	10,300
1 1/8	CCI 209	Clays	17.2	Win AA12	1,145	10,300
1 1/8	Win 209	Clays	17.7	Lage Uniwad	1,145	10,300
1 1/8	Win 209	WST	19.0	Rem Fig 8	1,145	10,400
1 1/8	CCI 209SC	Red Dot	18.0	Rem Fig 8	1,145	10,400
1 1/8	CCI 209SC	Red Dot	18.5	Fed 12S3	1,145	10,400

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Titewad	16.8	Rem Fig 8	1,145	10,400
1 1/8	Win 209	Titewad	17.2	Windjammer	1,145	10,400
1 1/8	Ched 209	Clays	17.2	Rem Fig 8	1,145	10,400
1 1/8	Win 209	WST	19.0	Rem RXP12	1,145	10,500
1 1/8	Fed 209A	Green Dot	19.5	Rem RXP12	1,145	10,500
1 1/8	Fed 209A	Red Dot	17.5	Windjammer	1,145	10,500
1 1/8	Fed 209A	Titewad	16.0	Win AA12	1,145	10,500
1 1/8	Fio 616	Clays	17.0	Rem Fig 8	1,145	10,500
1 1/8	Win 209	Clays	17.3	Trapper	1,145	10,500
1 1/8	CCI 209SC	Green Dot	20.0	Win AA12	1,145	10,600
1 1/8	Fed 209A	Red Dot	16.0	Rem RXP12	1,145	10,600
1 1/8	CCI 209M	Red Dot	17.5	Fed 12S3	1,145	10,600
1 1/8	Fio 616	Titewad	16.0	Win AA12	1,145	10,600
1 1/8	Ched 209	Clays	16.4	Win AA12	1,145	10,600
1 1/8	Fio 616	Clays	16.8	Win AA12	1,145	10,600
1 1/8	Rem 209P	Clays	16.5	Hawk	1,145	10,600
1 1/8	Fed 209A	Red Dot	17.0	Red PC	1,145	10,700
1 1/8	Fed 209A	Titewad	16.3	Rem Fig 8	1,145	10,700
1 1/8	Win 209	Titewad	16.3	Hawk	1,145	10,700
1 1/8	Fed 209A	Clays	16.9	Rem Fig 8	1,145	10,700
1 1/8	CCI 209	WST	18.0	Win AA12	1,145	10,800
1 1/8	CCI 209	WST	18.5	Rem RXP12	1,145	10,800
1 1/8	CCI 209	Titewad	16.0	Red PC	1,145	10,800
1 1/8	Rem 209P	Titewad	16.1	Win AA12	1,145	10,900
1 1/8	Win 209	Titewad	17.0	Fed 12S3	1,145	10,900
1 1/8	CCI 209SC	Clays	17.0	Win AA12	1,145	10,900
1 1/8	Ched 209	Titewad	16.2	Rem Fig 8	1,145	11,000
1 1/8	Fio 616	Titewad	16.0	Rem Fig 8	1,145	11,000
1 1/8	Rem 209P	Titewad	16.0	Trapper	1,145	11,000
1 1/8	CCI 209SC	Titewad	15.8	Win AA12	1,145	11,100
1 1/8	CCI 209SC	Titewad	16.0	Windjammer	1,145	11,100
1 1/8	Win 209	Titewad	16.3	Trapper	1,145	11,200
1 1/8	Fed 209A	Clays	16.6	Win AA12	1,145	11,200
1 1/8	Rem 209P	Clays	17.0	Trapper	1,145	11,200
1 1/8	CCI 209	Titewad	15.8	Rem Fig 8	1,145	11,300
1 1/8	Ched 209	Titewad	15.8	Win AA12	1,145	11,400
1 1/8	Fio 616	Titewad	16.0	Fio TL1	1,145	11,500
1 1/8	Rem 209P	SR7625	23.0	Windjammer	1,150	6,700
1 1/8	Fed 209A	SR7625	22.0	Windjammer	1,150	7,200
1 1/8	Rem 209P	PB	21.0	CB1118-12	1,150	7,400
1 1/8	Rem 209P	SR7625	22.5	Rem RXP12	1,150	7,400
1 1/8	Rem 209P	PB	21.5	Rem Fig 8	1,150	7,500
1 1/8	CCI 209	800-X	20.5	Win AA12	1,150	7,500
1 1/8	Fed 209A	800-X	20.5	CB1118-12	1,150	7,500
1 1/8	Win 209	PB	21.0	CB3118-12	1,150	7,700
1 1/8	Rem 209P	SR7625	22.0	Fed 12S3	1,150	7,800
1 1/8	Fed 209A	PB	20.5	CB1118-12	1,150	7,900
1 1/8	Fed 209A	SR7625	21.5	CB1118-12	1,150	7,900

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	SR7625	21.5	Win AA12	1,150	8,000
1 1/8	Fed 209A	PB	20.5	Rem Fig 8	1,150	8,100
1 1/8	Win 209	700-X	16.5	Windjammer	1,150	8,900
1 1/8	Fed 209A	700-X	16.5	Rem Fig 8	1,150	10,000
1 1/8	Rem 209P	700-X	16.5	Fed 12S3	1,150	10,200
1 1/8	CCI 209	800-X	21.0	CB1118-12	1,155	7,000
1 1/8	Win 209	SR7625	22.5	CB1118-12	1,155	7,200
1 1/8	CCI 209	800-X	21.0	Rem Fig 8	1,155	7,200
1 1/8	Rem 209P	SR7625	22.0	CB1118-12	1,155	7,400
1 1/8	Win 209	SR7625	22.5	Rem RXP12	1,155	7,400
1 1/8	Win 209	PB	21.0	Rem Fig 8	1,155	7,900
1 1/8	Win 209	SR7625	22.0	Win AA12	1,155	7,900
1 1/8	Fed 209A	SR7625	22.0	Rem RXP12	1,155	8,000
1 1/8	Win 209	PB	20.5	Fed 12S4	1,155	8,500
1 1/8	Rem 209P	700-X	16.5	CB1118-12	1,155	8,900
1 1/8	Fed 209A	PB	20.0	Win AA12	1,155	9,200
1 1/8	Fed 209A	700-X	16.5	Windjammer	1,155	9,500
1 1/8	Fed 209A	800-X	21.0	Windjammer	1,160	7,200
1 1/8	Fed 209A	700-X	16.5	CB1118-12	1,160	9,700
1 1/8	Fed 209A	700-X	16.5	Win AA12	1,160	10,900
1 1/8	Win 209	800-X	22.0	Windjammer	1,190	7,500
1 1/8	CCI 209	800-X	22.0	Rem Fig 8	1,190	7,600
1 1/8	Win 209	800-X	21.5	CB1118-12	1,190	7,800
1 1/8	CCI 209	800-X	21.5	Win AA12	1,190	8,200
1 1/8	Win 209	PB	22.0	Rem Fig 8	1,190	8,400
1 1/8	Fed 209A	SR7625	22.5	CB1118-12	1,190	8,400
1 1/8	Fed 209A	SR7625	23.0	Rem RXP12	1,190	8,600
1 1/8	Win 209	800-X	21.0	Win AA12	1,190	8,600
1 1/8	Fed 209A	800-X	21.0	Win AA12	1,190	8,700
1 1/8	Win 209	PB	21.5	Fed 12S4	1,190	9,100
1 1/8	Fed 209A	PB	21.0	Fed 12S4	1,190	9,600
1 1/8	Win 209	700-X	17.5	Windjammer	1,190	9,800
1 1/8	Win 209	700-X	17.5	CB1118-12	1,190	9,800
1 1/8	Fed 209A	PB	21.0	Win AA12	1,190	9,900
1 1/8	Win 209	700-X	17.5	Fed 12S3	1,190	10,900
1 1/8	Win 209	700-X	17.5	Win AA12	1,190	11,200
1 1/8	Rem 209P	SR7625	24.0	Windjammer	1,195	7,300
1 1/8	CCI 209	800-X	22.0	Windjammer	1,195	7,300
1 1/8	CCI 209	800-X	22.0	CB1118-12	1,195	7,500
1 1/8	Win 209	SR7625	23.5	Rem RXP12	1,195	7,900
1 1/8	Rem 209P	SR7625	23.0	CB1118-12	1,195	8,000
1 1/8	Win 209	SR7625	23.0	Win AA12	1,195	8,600
1 1/8	Fed 209A	SR7625	22.5	Fed 12S3	1,195	9,100
1 1/8	Rem 209P	PB	21.5	Fed 12S4	1,195	9,300
1 1/8	Rem 209P	700-X	17.5	CB1118-12	1,195	9,800
1 1/8	Fed 209A	700-X	17.5	Rem Fig 8	1,195	11,000
1 1/8	Rem 209P	700-X	17.5	Fed 12S3	1,195	11,100
1 1/8	Rem 209P	Unique	23.5	Windjammer	1,200	7,000

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Unique	22.2	CB3118-12	1,200	7,300
1 1/8	CCI 209	International	21.2	Windjammer	1,200	7,500
1 1/8	Rem 209P	International	20.9	Rem Fig 8	1,200	7,500
1 1/8	Win 209	SR7625	23.0	CB1118-12	1,200	7,600
1 1/8	Rem 209P	Unique	22.5	Red PC	1,200	7,800
1 1/8	Rem 209P	Unique	22.7	Blue Duster	1,200	7,800
1 1/8	Rem 209P	Unique	22.0	Hor Versalite	1,200	7,900
1 1/8	Rem 209P	PB	22.5	CB1118-12	1,200	8,000
1 1/8	Win 209	PB	22.5	CB1118-12	1,200	8,000
1 1/8	Rem 209P	Green Dot	20.5	Windjammer	1,200	8,200
1 1/8	Rem 209P	Unique	22.5	Rem Fig 8	1,200	8,200
1 1/8	CCI 209M	Unique	23.5	Windjammer	1,200	8,200
1 1/8	Fed 209A	800-X	21.5	CB1118-12	1,200	8,200
1 1/8	Rem 209P	Unique	22.5	Rem RXP12	1,200	8,300
1 1/8	Rem 209P	Unique	23.5	Win WT12	1,200	8,300
1 1/8	Win 209	Unique	22.5	Rem Fig 8	1,200	8,400
1 1/8	Fed 209A	800-X	22.0	Rem Fig 8	1,200	8,400
1 1/8	CCI 209	Universal	23.2	Windjammer	1,200	8,400
1 1/8	Rem 209P	Green Dot	21.0	Red PC	1,200	8,500
1 1/8	CCI 209	Unique	22.5	Rem Fig 8	1,200	8,500
1 1/8	Fio 616	Unique	23.0	Rem Fig 8	1,200	8,500
1 1/8	Fed 209A	PB	22.0	Windjammer	1,200	8,500
1 1/8	CCI 209	800-X	22.0	Fed 12S3	1,200	8,500
1 1/8	Win 209	Green Dot	20.0	Rem Fig 8	1,200	8,600
1 1/8	CCI 209	Clays	19.4	Windjammer	1,200	8,600
1 1/8	Fio 616	Green Dot	20.0	Rem Fig 8	1,200	8,700
1 1/8	Rem 209P	Green Dot	20.0	Hor Versalite	1,200	8,700
1 1/8	CCI 209M	Green Dot	20.5	Windjammer	1,200	8,700
1 1/8	Rem 209P	Green Dot	20.5	Rem RXP12	1,200	8,700
1 1/8	CCI 209	Green Dot	21.0	Rem Fig 8	1,200	8,700
1 1/8	Rem 209P	Green Dot	21.5	Win WT12	1,200	8,700
1 1/8	CCI 209M	Unique	22.5	Red PC	1,200	8,700
1 1/8	Rem 209P	PB	22.0	Win AA12	1,200	8,700
1 1/8	Rem 209P	SR7625	23.0	Win AA12	1,200	8,700
1 1/8	Rem 209P	International	19.7	Win AA12	1,200	8,700
1 1/8	Rem 209P	Green Dot	21.0	Rem Fig 8	1,200	8,800
1 1/8	CCI 209M	Unique	22.0	Hor Versalite	1,200	8,800
1 1/8	Fed 209A	PB	22.0	CB3118-12	1,200	8,800
1 1/8	CCI 209SC	Clays	18.0	Rem Fig 8	1,200	8,800
1 1/8	Rem 209P	Green Dot	21.0	Win AA12	1,200	8,900
1 1/8	Rem 209P	Unique	22.0	Win AA12	1,200	8,900
1 1/8	Fed 209A	PB	22.0	Rem Fig 8	1,200	8,900
1 1/8	Win 209	Universal	22.5	Rem Fig 8	1,200	8,900
1 1/8	CCI 209M	Green Dot	20.5	Red PC	1,200	9,000
1 1/8	Rem 209P	Clays	19.2	Rem Fig 8	1,200	9,000
1 1/8	Rem 209P	International	19.4	Fed 12S3	1,200	9,000
1 1/8	Rem 209P	American Select	20.5	Rem Fig 8	1,200	9,100
1 1/8	Rem 209P	American Select	20.5	Windjammer	1,200	9,100

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Unique	22.0	Rem RXP12	1,200	9,100
1 1/8	Rem 209P	Unique	22.0	Fed 12S3	1,200	9,100
1 1/8	Win 209	International	19.5	Hor Versalite	1,200	9,100
1 1/8	CCI 209M	Green Dot	20.0	Hor Versalite	1,200	9,200
1 1/8	CCI 209M	Green Dot	20.5	Rem RXP12	1,200	9,200
1 1/8	Fed 209A	Unique	23.0	Rem Fig 8	1,200	9,200
1 1/8	CCI 209M	Green Dot	20.0	Rem Fig 8	1,200	9,300
1 1/8	CCI 209M	Unique	22.0	Win AA12	1,200	9,300
1 1/8	CCI 209SC	International	20.3	Rem Fig 8	1,200	9,300
1 1/8	Rem 209P	Red Dot	18.5	Windjammer	1,200	9,400
1 1/8	Rem 209P	International	20.3	Windjammer	1,200	9,400
1 1/8	Rem 209P	American Select	20.0	CB3118-12	1,200	9,500
1 1/8	CCI 209M	Unique	22.5	Rem Fig 8	1,200	9,500
1 1/8	CCI 209M	Unique	22.5	Rem RXP12	1,200	9,500
1 1/8	CCI 209M	Green Dot	21.0	Win AA12	1,200	9,600
1 1/8	Rem 209P	700-X	18.0	Windjammer	1,200	9,600
1 1/8	CCI 209	International	20.1	Red PC	1,200	9,600
1 1/8	Ched 209	International	19.9	Windjammer	1,200	9,600
1 1/8	Win 209	International	20.3	Red PC	1,200	9,600
1 1/8	Rem 209P	American Select	20.5	Red PC	1,200	9,700
1 1/8	Rem 209P	Green Dot	20.3	CB3118-12	1,200	9,700
1 1/8	CCI 209M	Green Dot	20.5	Fio FTW1	1,200	9,700
1 1/8	Rem 209P	Green Dot	20.5	Fed 12S3	1,200	9,700
1 1/8	CCI 209M	Red Dot	18.5	Windjammer	1,200	9,700
1 1/8	CCI 209M	Unique	22.0	Fed 12S3	1,200	9,700
1 1/8	CCI 209SC	International	20.0	Windjammer	1,200	9,700
1 1/8	Rem 209P	Green Dot	20.0	Blue Duster	1,200	9,800
1 1/8	Rem 209P	Red Dot	18.5	CB3118-12	1,200	9,800
1 1/8	Fio 616	International	20.0	Windjammer	1,200	9,800
1 1/8	Win 209	Universal	21.5	Win AA12	1,200	9,800
1 1/8	Rem 209P	Green Dot	20.5	Fio FTW1	1,200	9,900
1 1/8	CCI 209	Red Dot	19.5	Rem Fig 8	1,200	9,900
1 1/8	Win 209	Titegroup	17.1	Rem Fig 8	1,200	9,900
1 1/8	Rem 209P	International	20.2	Red PC	1,200	9,900
1 1/8	Win 209	International	20.3	Lage Uniwad	1,200	9,900
1 1/8	Win 209	Titegroup	17.1	Rem Fig 8	1,200	9,900
1 1/8	Rem 209P	Red Dot	19.0	Rem RXP12	1,200	10,000
1 1/8	Rem 209P	Titegroup	17.1	Rem Fig 8	1,200	10,000
1 1/8	CCI 209SC	International	19.8	Red PC	1,200	10,000
1 1/8	Rem 209P	Titegroup	17.1	Rem Fig 8	1,200	10,000
1 1/8	Fed 209A	Red Dot	17.0	Rem RXP12	1,200	10,100
1 1/8	Rem 209P	Red Dot	19.0	Rem Fig 8	1,200	10,100
1 1/8	Rem 209P	Red Dot	19.5	Red PC	1,200	10,100
1 1/8	Ched 209	International	19.8	Rem Fig 8	1,200	10,100
1 1/8	Fio 616	International	19.7	Rem Fig 8	1,200	10,100
1 1/8	Rem 209P	International	19.6	Hor Versalite	1,200	10,100
1 1/8	Win 209	International	19.9	Trapper	1,200	10,100
1 1/8	Win 209	International	19.8	Win AA12	1,200	10,100

12

12 Gauge 2 3/4"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 3/4"

Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	American Select	20.0	Blue Duster	1,200	10,200
1 1/8	Win 209	American Select	20.0	Rem Fig 8	1,200	10,200
1 1/8	Rem 209P	American Select	20.5	Rem RXP12	1,200	10,200
1 1/8	CCI 209M	Green Dot	20.5	Fed 12S3	1,200	10,200
1 1/8	CCI 209	International	20.2	Rem Fig 8	1,200	10,200
1 1/8	CCI 209	International	19.6	Win AA12	1,200	10,200
1 1/8	Fed 209A	International	19.6	Windjammer	1,200	10,200
1 1/8	Rem 209P	International	19.9	Hawk	1,200	10,200
1 1/8	Win 209	International	20.0	Hawk	1,200	10,200
1 1/8	Win 209	International	19.7	Rem Fig 8	1,200	10,200
1 1/8	Fed 209A	Universal	21.7	Fed 12S3	1,200	10,200
1 1/8	CCI 209SC	American Select	20.0	Rem Fig 8	1,200	10,300
1 1/8	Rem 209P	Red Dot	18.3	Win AA12	1,200	10,300
1 1/8	Rem 209P	Red Dot	18.5	Blue Duster	1,200	10,300
1 1/8	Rem 209P	Clays	18.8	Win AA12	1,200	10,300
1 1/8	Rem 209P	Titegroup	16.7	Win AA12	1,200	10,300
1 1/8	Fed 209A	International	19.5	Red PC	1,200	10,300
1 1/8	Rem 209P	International	19.8	Trapper	1,200	10,300
1 1/8	Win 209	International	22.1	Windjammer	1,200	10,300
1 1/8	Rem 209P	Titegroup	16.7	Win AA12	1,200	10,300
1 1/8	Rem 209STS	e3	17.0	Rem Fig 8	1,200	10,335
1 1/8	Fed 209A	Green Dot	21.0	Rem RXP12	1,200	10,400
1 1/8	CCI 209SC	Green Dot	22.0	Windjammer	1,200	10,400
1 1/8	Fed 209A	Red Dot	17.0	Rem Fig 8	1,200	10,400
1 1/8	CCI 209M	Red Dot	18.5	Rem Fig 8	1,200	10,400
1 1/8	CCI 209M	Red Dot	19.0	Hor Versalite	1,200	10,400
1 1/8	CCI 209M	Red Dot	19.0	Red PC	1,200	10,400
1 1/8	Win 209	Red Dot	19.0	Rem Fig 8	1,200	10,400
1 1/8	Fed 209A	700-X	17.5	Windjammer	1,200	10,400
1 1/8	CCI 209SC	International	19.5	Win AA12	1,200	10,400
1 1/8	Ched 209	International	19.5	Win AA12	1,200	10,400
1 1/8	Fed 209A	Green Dot	20.5	Rem Fig 8	1,200	10,500
1 1/8	CCI 209M	Red Dot	18.5	Rem RXP12	1,200	10,500
1 1/8	Win 209	Clays	18.6	Hor Versalite	1,200	10,500
1 1/8	Win 209	Clays	19.4	Windjammer	1,200	10,500
1 1/8	Win 209	Titegroup	16.8	Win AA12	1,200	10,500
1 1/8	Win 209	Titegroup	16.8	Win AA12	1,200	10,500
1 1/8	Rem 209P	American Select	20.0	Fed 12S3	1,200	10,600
1 1/8	Rem 209P	American Select	20.0	Win WT12	1,200	10,600
1 1/8	CCI 209SC	Green Dot	20.0	Fed 12S3	1,200	10,600
1 1/8	CCI 209SC	Green Dot	21.0	Rem Fig 8	1,200	10,600
1 1/8	CCI 209M	Red Dot	18.5	Fio FTW1	1,200	10,600
1 1/8	Fio 616	Red Dot	19.5	Rem Fig 8	1,200	10,600
1 1/8	Fed 209A	American Select	20.0	Rem Fig 8	1,200	10,700
1 1/8	Rem 209P	Red Dot	18.5	Fio FTW1	1,200	10,700
1 1/8	Rem 209P	Red Dot	19.5	Win WT12	1,200	10,700
1 1/8	Fed 209A	International	19.3	Rem Fig 8	1,200	10,700
1 1/8	Fed 209A	700-X	17.5	CB1118-12	1,200	10,800

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Ched 209	Clays	18.3	Windjammer	1,200	10,800
1 1/8	Fio 616	Clays	18.4	Windjammer	1,200	10,800
1 1/8	Fed 209A	International	19.1	Win AA12	1,200	10,800
1 1/8	Rem 209P	Titewad	17.9	Rem Fig 8	1,200	10,900
1 1/8	Win 209	Titewad	18.3	Red PC	1,200	10,900
1 1/8	Rem 209P	American Select	19.2	Win AA12	1,200	11,000
1 1/8	Win 209	Clays	18.6	Rem Fig 8	1,200	11,000
1 1/8	Fed 209A	Titewad	17.8	Windjammer	1,200	11,100
1 1/8	Win 209	Clays	19.0	Red PC	1,200	11,100
1 1/8	Fed 209A	Titewad	18.0	Red PC	1,200	11,300
1 1/8	Rem 209P	Titewad	18.0	Red PC	1,200	11,300
1 1/8	Win 209	Titewad	17.8	Rem Fig 8	1,200	11,300
1 1/8	CCI 209	Clays	18.8	Red PC	1,200	11,300
1 1/8	Fed 209A	Clays	18.0	Red PC	1,200	11,300
1 1/8	Win 209	Clays	18.4	Win AA12	1,200	11,300
1 1/8	Rem 209P	Titewad	17.6	Windjammer	1,200	11,400
1 1/8	Win 209	Titewad	17.9	Win AA12	1,200	11,400
1 1/8	CCI 209	Clays	19.3	Rem Fig 8	1,200	11,400
1 1/8	Fed 209A	Clays	18.4	Windjammer	1,200	11,400
1 1/8	Fed 209A	700-X	17.5	Fed 12S3	1,200	11,500
1 1/8	Win 209	Titewad	18.5	Windjammer	1,200	11,500
1 1/8	CCI 209	Clays	18.2	Win AA12	1,200	11,500
1 1/8	CCI 209SC	Clays	18.4	Red PC	1,200	11,500
1 1/8	CCI 209SC	Clays	18.5	Windjammer	1,200	11,500
1 1/8	Rem 209P	Clays	18.8	Red PC	1,200	11,500
1 1/8	Win 209	Clays	18.6	Hawk	1,200	11,500
1 1/8	Win 209	SR7625	24.0	Windjammer	1,205	7,700
1 1/8	Fed 209A	SR7625	23.5	Windjammer	1,205	7,800
1 1/8	Rem 209P	PB	22.5	Windjammer	1,205	7,900
1 1/8	Fed 209A	800-X	22.0	Windjammer	1,205	7,900
1 1/8	Win 209	800-X	22.0	Rem Fig 8	1,205	8,100
1 1/8	Win 209	PB	22.5	Windjammer	1,205	8,200
1 1/8	Rem 209P	SR7625	24.0	Rem RXP12	1,205	8,200
1 1/8	Rem 209P	PB	23.0	Rem Fig 8	1,205	8,400
1 1/8	Win 209	800-X	21.5	Fed 12S3	1,205	8,500
1 1/8	Win 209	PB	22.5	CB3118-12	1,205	8,600
1 1/8	Fed 209A	PB	22.0	CB1118-12	1,205	8,700
1 1/8	Win 209	SR7625	23.5	Fed 12S3	1,205	8,800
1 1/8	Fed 209A	800-X	21.5	Fed 12S3	1,205	9,000
1 1/8	Win 209	PB	22.0	Win AA12	1,205	9,400
1 1/8	Fed 209A	SR7625	22.0	Win AA12	1,205	9,700
1 1/8	Rem 209P	700-X	18.0	Rem Fig 8	1,205	10,400
1 1/8	Win 209	700-X	18.0	Rem Fig 8	1,205	10,800
1 1/8	Rem 209P	700-X	17.5	Win AA12	1,205	11,200
1 1/8	Rem 209P	SR7625	23.5	Fed 12S3	1,210	8,700
1 1/8	Fed 209A	700-X	18.5	Windjammer	1,240	11,100
1 1/8	Win 209	SR7625	24.5	CB1118-12	1,245	8,600
1 1/8	Rem 209P	PB	23.0	Fed 12S4	1,245	10,000

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	700-X	19.0	Windjammer	1,245	10,500
1 1/8	Fed 209A	SR7625	23.0	Win AA12	1,245	10,500
1 1/8	CCI 209	800-X	23.5	Windjammer	1,250	8,200
1 1/8	Win 209	800-X	23.5	Windjammer	1,250	8,400
1 1/8	Win 209	SR7625	25.0	Windjammer	1,250	8,500
1 1/8	Rem 209P	PB	24.0	CB1118-12	1,250	8,600
1 1/8	Fed 209A	800-X	23.0	Windjammer	1,250	8,600
1 1/8	Win 209	800-X	23.0	CB1118-12	1,250	8,700
1 1/8	Win 209	Unique	24.5	Rem RXP12	1,250	8,800
1 1/8	Rem 209P	SR7625	24.5	CB1118-12	1,250	8,800
1 1/8	Win 209	SR7625	25.0	Rem RXP12	1,250	8,800
1 1/8	Rem 209P	SR7625	25.5	Rem RXP12	1,250	9,000
1 1/8	Fed 209A	800-X	23.0	CB1118-12	1,250	9,000
1 1/8	Fio 616	Green Dot	22.0	Rem RXP12	1,250	9,100
1 1/8	Fio 616	Unique	23.5	Rem RXP12	1,250	9,100
1 1/8	Fed 209A	SR7625	24.0	CB1118-12	1,250	9,200
1 1/8	CCI 209M	Unique	25.0	Windjammer	1,250	9,300
1 1/8	Win 209	PB	23.5	Rem Fig 8	1,250	9,300
1 1/8	CCI 209M	Green Dot	22.0	Windjammer	1,250	9,400
1 1/8	Win 209	Green Dot	22.0	Rem RXP12	1,250	9,400
1 1/8	CCI 209M	Herco	25.0	Windjammer	1,250	9,400
1 1/8	CCI 209M	Unique	24.0	Red PC	1,250	9,400
1 1/8	Fed 209A	SR7625	24.5	Rem RXP12	1,250	9,400
1 1/8	CCI 209M	Herco	25.0	Red PC	1,250	9,500
1 1/8	Rem 209P	SR7625	24.5	Fed 12S3	1,250	9,500
1 1/8	Win 209	SR7625	24.5	Win AA12	1,250	9,500
1 1/8	CCI 209M	Green Dot	22.0	Red PC	1,250	9,600
1 1/8	CCI 209M	Green Dot	22.0	Rem RXP12	1,250	9,600
1 1/8	Win 209	800-X	22.5	Win AA12	1,250	9,600
1 1/8	Fed 209A	800-X	22.5	Win AA12	1,250	9,700
1 1/8	Rem 209P	Green Dot	21.0	CB3118-12	1,250	9,800
1 1/8	CCI 209M	Herco	24.5	Rem RXP12	1,250	9,800
1 1/8	Rem 209P	American Select	21.5	Rem Fig 8	1,250	9,900
1 1/8	CCI 209M	Herco	24.5	Fed 12S3	1,250	9,900
1 1/8	CCI 209M	Herco	24.5	Hor Versalite	1,250	9,900
1 1/8	CCI 209M	Unique	23.5	Hor Versalite	1,250	9,900
1 1/8	Rem 209P	Green Dot	21.1	Rem RXP12	1,250	10,000
1 1/8	Fed 209A	SR7625	24.0	Fed 12S3	1,250	10,000
1 1/8	CCI 209M	Green Dot	21.5	Hor Versalite	1,250	10,200
1 1/8	CCI 209M	Unique	23.5	Fed 12S3	1,250	10,200
1 1/8	Rem 209P	Green Dot	21.5	Blue Duster	1,250	10,300
1 1/8	CCI 209M	Unique	24.0	Win AA12	1,250	10,300
1 1/8	CCI 209M	Herco	24.5	Win AA12	1,250	10,400
1 1/8	CCI 209M	Unique	24.0	Rem RXP12	1,250	10,400
1 1/8	Rem 209P	American Select	21.0	Rem RXP12	1,250	10,500
1 1/8	Rem 209P	Green Dot	22.0	Win WT12	1,250	10,570
1 1/8	Rem 209P	American Select	21.5	CB3118-12	1,250	10,600
1 1/8	CCI 209M	Green Dot	21.5	Fed 12S3	1,250	10,600

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Green Dot	21.5	Rem Fig 8	1,250	10,700
1 1/8	CCI 209M	Green Dot	22.5	Win AA12	1,250	10,700
1 1/8	Rem 209P	700-X	19.0	CB1118-12	1,250	11,100
1 1/8	Rem 209P	700-X	19.0	Rem Fig 8	1,250	11,300
1 1/8	Win 209	700-X	19.0	CB1118-12	1,250	11,400
1 1/8	CCI 209	International	22.3	Windjammer	1,255	8,300
1 1/8	Fed 209A	SR7625	25.0	Windjammer	1,255	8,400
1 1/8	CCI 209	800-X	23.5	CB1118-12	1,255	8,400
1 1/8	Win 209	PB	24.0	CB1118-12	1,255	8,800
1 1/8	CCI 209	800-X	23.0	Win AA12	1,255	9,100
1 1/8	Rem 209P	International	21.7	Rem Fig 8	1,255	9,100
1 1/8	CCI 209	Universal	24.4	Windjammer	1,255	9,100
1 1/8	Rem 209P	SR7625	24.5	Win AA12	1,255	9,400
1 1/8	Rem 209P	PB	23.5	Win AA12	1,255	9,500
1 1/8	Fed 209A	PB	23.5	Rem Fig 8	1,255	9,600
1 1/8	Win 209	SR7625	24.5	Fed 12S3	1,255	9,600
1 1/8	Win 209	Universal	23.7	Rem Fig 8	1,255	9,900
1 1/8	Win 209	PB	23.5	Win AA12	1,255	10,200
1 1/8	Rem 209P	International	20.6	Fed 12S3	1,255	10,200
1 1/8	CCI 209SC	International	22.0	Rem Fig 8	1,255	10,300
1 1/8	Rem 209P	International	20.9	Win AA12	1,255	10,400
1 1/8	Win 209	International	20.6	Hor Versalite	1,255	10,400
1 1/8	Rem 209P	International	21.5	Windjammer	1,255	10,500
1 1/8	Win 209	International	21.5	Red PC	1,255	10,500
1 1/8	CCI 209SC	International	21.2	Windjammer	1,255	10,700
1 1/8	Win 209	Universal	23.0	Win AA12	1,255	10,700
1 1/8	Ched 209	International	21.1	Windjammer	1,255	10,800
1 1/8	CCI 209SC	International	20.8	Red PC	1,255	11,000
1 1/8	Fed 209A	Universal	22.7	Fed 12S3	1,255	11,000
1 1/8	Win 209	700-X	19.0	Windjammer	1,255	11,100
1 1/8	CCI 209	International	21.2	Red PC	1,255	11,100
1 1/8	Rem 209P	International	21.4	Red PC	1,255	11,100
1 1/8	Win 209	International	21.6	Lage Uniwad	1,255	11,100
1 1/8	Fio 616	International	21.4	Windjammer	1,255	11,200
1 1/8	Ched 209	International	21.0	Rem Fig 8	1,255	11,300
1 1/8	Fed 209A	International	20.6	Red PC	1,255	11,300
1 1/8	Fio 616	International	20.9	Rem Fig 8	1,255	11,300
1 1/8	Rem 209P	International	21.0	Hawk	1,255	11,300
1 1/8	Rem 209P	International	20.8	Hor Versalite	1,255	11,300
1 1/8	Win 209	International	20.8	Rem Fig 8	1,255	11,300
1 1/8	CCI 209	International	21.3	Rem Fig 8	1,255	11,400
1 1/8	CCI 209	International	20.9	Win AA12	1,255	11,400
1 1/8	Fed 209A	International	20.9	Windjammer	1,255	11,400
1 1/8	Rem 209P	International	21.2	Trapper	1,255	11,400
1 1/8	Rem 209P	Titegroup	18.5	Rem Fig 8	1,255	11,500
1 1/8	CCI 209SC	International	20.8	Win AA12	1,255	11,500
1 1/8	Win 209	International	21.5	Hawk	1,255	11,500
1 1/8	Win 209	International	21.3	Trapper	1,255	11,500

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93

Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	International	21.1	Win AA12	1,255	11,500
1 1/8	Rem 209P	Titegroup	18.5	Rem Fig 8	1,255	11,500
1 1/8	Rem 209P	SR7625	25.5	Windjammer	1,260	8,400
1 1/8	Win 209	PB	24.0	Windjammer	1,260	9,100
1 1/8	Fed 209A	800-X	23.5	Rem Fig 8	1,260	9,200
1 1/8	Rem 209P	PB	24.5	Rem Fig 8	1,260	9,300
1 1/8	CCI 209	800-X	23.5	Fed 12S3	1,260	9,400
1 1/8	Fed 209A	PB	23.5	Windjammer	1,260	9,500
1 1/8	Fed 209A	PB	23.5	CB1118-12	1,260	9,500
1 1/8	Win 209	PB	24.0	CB3118-12	1,260	9,500
1 1/8	Win 209	800-X	23.0	Fed 12S3	1,260	9,600
1 1/8	Fed 209A	PB	23.5	CB3118-12	1,260	9,900
1 1/8	Fed 209A	800-X	23.0	Fed 12S3	1,260	9,900
1 1/8	Win 209	PB	23.5	Fed 12S4	1,260	10,400
1 1/8	Fed 209A	PB	23.0	Win AA12	1,260	11,000
1 1/8	CCI 209	800-X	24.0	Rem Fig 8	1,265	8,700
1 1/8	Rem 209P	PB	24.0	Windjammer	1,265	8,900
1 1/8	Win 209	800-X	23.5	Rem Fig 8	1,265	8,900
1 1/8	Fed 209A	PB	23.0	Fed 12S4	1,265	10,900
1 1/8	Rem 209P	Herco	27.5	Rem RXP12	1,310	8,400
1 1/8	Rem 209P	Herco	28.5	Windjammer	1,310	8,600
1 1/8	Rem 209P	Unique	26.5	Windjammer	1,310	8,600
1 1/8	Rem 209P	Herco	27.0	Hor Versalite	1,310	8,800
1 1/8	Rem 209P	Herco	27.0	Win AA12	1,310	8,800
1 1/8	Fio 616	Herco	27.5	Rem RXP12	1,310	9,300
1 1/8	Win 209	Herco	27.0	Rem RXP12	1,310	9,500
1 1/8	Win 209	WSF	27.0	Win AA12	1,310	9,700
1 1/8	CCI 209M	Herco	26.5	Rem RXP12	1,310	9,700
1 1/8	Rem 209P	Unique	24.5	Rem RXP12	1,310	9,700
1 1/8	Win 209	Unique	26.0	Rem RXP12	1,310	9,800
1 1/8	Rem 209P	Unique	25.5	Hor Versalite	1,310	9,900
1 1/8	Fio 616	Unique	26.0	Rem RXP12	1,310	9,900
1 1/8	CCI 209M	Unique	25.0	Rem RXP12	1,310	10,000
1 1/8	CCI 209	Universal	25.7	Windjammer	1,310	10,200
1 1/8	Rem 209P	Unique	25.0	Win AA12	1,310	10,500
1 1/8	Win 209	Universal	25.0	Rem Fig 8	1,310	10,800
1 1/8	Win 209	WSF	28.0	Fed 12S3	1,365	8,900
1 1/8	Win 209	WSF	28.5	Win AA12	1,365	10,700
1 1/8	Win 209	WSF	29.0	Fed 12S3	1,400	9,500
1 1/8	Win 209	Longshot	33.4	Windjammer	1,420	7,700
1 1/8	Win 209	Longshot	31.9	Fed 12S3	1,420	8,500
1 1/8	Rem 209P	Longshot	32.0	Windjammer	1,420	8,600
1 1/8	Win 209	Longshot	31.5	Rem R12L	1,420	8,800
1 1/8	CCI 209M	Longshot	31.7	Hor Versalite	1,420	9,000
1 1/8	CCI 209M	Longshot	31.7	Windjammer	1,420	9,000
1 1/8	Rem 209P	Longshot	31.0	Hor Versalite	1,420	9,100
1 1/8	Win 209	Longshot	31.7	Win AA12	1,420	9,100
1 1/8	Fed 209A	Longshot	30.6	Windjammer	1,420	9,300

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Longshot	30.6	Win AA12	1,420	9,300
1 1/8	Rem 209P	Longshot	31.1	Rem R12L	1,420	9,400
1 1/8	CCI 209M	Longshot	31.0	Rem R12L	1,420	9,600
1 1/8	CCI 209M	Longshot	30.9	Win AA12	1,420	9,800
1 1/8	CCI 209M	Longshot	30.6	Fed 12S3	1,420	10,000
1 1/8	Fed 209A	Longshot	29.8	Rem R12L	1,420	10,200
1 1/8	Fed 209A	Longshot	29.4	Fed 12S3	1,420	10,700
1 1/8	Fed 209A	Longshot	29.4	Win AA12	1,420	10,900
1 1/8	Win 209	Longshot	34.3	Windjammer	1,475	8,800
1 1/8	Rem 209P	Longshot	33.5	Windjammer	1,475	9,700
1 1/8	CCI 209M	Longshot	33.3	Windjammer	1,475	9,800
1 1/8	Win 209	Longshot	33.0	Fed 12S3	1,475	9,800
1 1/8	CCI 209M	Longshot	32.9	Hor Versalite	1,475	9,900
1 1/8	Rem 209P	Longshot	32.4	Hor Versalite	1,475	10,000
1 1/8	Win 209	Longshot	32.0	Rem R12L	1,475	10,100
1 1/8	Win 209	Longshot	32.8	Win AA12	1,475	10,100
1 1/8	Fed 209A	Longshot	32.1	Windjammer	1,475	10,300
1 1/8	CCI 209M	Longshot	32.7	Rem R12L	1,475	10,400
1 1/8	Rem 209P	Longshot	32.5	Rem R12L	1,475	10,400
1 1/8	Rem 209P	Longshot	31.7	Win AA12	1,475	10,400
1 1/8	CCI 209M	Longshot	32.3	Win AA12	1,475	10,600
1 1/8	CCI 209M	Longshot	31.9	Fed 12S3	1,475	11,000
1 1/8	Fed 209A	Longshot	31.2	Rem R12L	1,475	11,100
1 1/8	Fed 209A	Longshot	31.1	Fed 12S3	1,475	11,600
1 1/8	Win 209	Longshot	35.3	Windjammer	1,530	10,000
1 1/8	CCI 209M	Longshot	34.8	Windjammer	1,530	10,600
1 1/8	CCI 209M	Longshot	34.1	Hor Versalite	1,530	10,900
1 1/8	Rem 209P	Longshot	33.7	Hor Versalite	1,530	10,900
1 1/8	Rem 209P	Longshot	35.0	Windjammer	1,530	10,900
1 1/8	Win 209	Longshot	34.2	Fed 12S3	1,530	11,100
1 1/8	Win 209	Longshot	33.5	Win AA12	1,530	11,200
1 1/8	Fed 209A	Longshot	33.6	Windjammer	1,530	11,300
1 1/8	CCI 209M	Longshot	34.5	Rem R12L	1,530	11,400
1 1/8	CCI 209M	Longshot	33.6	Win AA12	1,530	11,400
1 1/8	Rem 209P	Longshot	33.9	Rem R12L	1,530	11,400
1 1/8	Win 209	Longshot	34.5	Rem R12L	1,530	11,400
1 1/8	Win 209	Longshot	36.3	Windjammer	1,585	11,100
1 1/8	CCI 209M	Longshot	36.4	Windjammer	1,585	11,500
1 1/4	Fed 209A	SR7625	24.0	Win AA12R	1,210	9,900
1 1/4	Rem 209P	PB	23.0	Rem SP12	1,215	10,600
1 1/4	Fed 209A	SR7625	24.0	Rem SP12	1,215	10,600
1 1/4	Rem 209P	Herco	25.0	Hor Versalite	1,220	8,400
1 1/4	CCI 209	WSF	25.5	Win AA12F114	1,220	9,100
1 1/4	Win 209	HS-6	32.0	Rem R12H	1,220	9,100
1 1/4	CCI 209	Universal	23.7	Rem SP12	1,220	9,200
1 1/4	Win 209	HS-6	32.0	Win AA12F114	1,220	9,200
1 1/4	Fio 616	Herco	24.5	Rem SP12	1,220	9,300
1 1/4	Rem 209P	Herco	24.5	Win AA12F114	1,220	9,300

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Rem 209P	Unique	23.5	Rem SP12	1,220	9,300
1 1/4	Rem 209P	Unique	23.5	Hor Versalite	1,220	9,400
1 1/4	Win 209	Herco	24.5	Rem SP12	1,220	9,600
1 1/4	Rem 209P	Herco	25.0	Rem SP12	1,220	9,600
1 1/4	Fio 616	Unique	23.0	Rem SP12	1,220	9,600
1 1/4	Rem 209P	Universal	24.0	Rem SP12	1,220	9,600
1 1/4	CCI 209M	Herco	24.5	Rem SP12	1,220	10,000
1 1/4	Win 209	Unique	23.5	Rem SP12	1,220	10,000
1 1/4	Win 209	Universal	24.0	Rem SP12	1,220	10,000
1 1/4	Rem 209P	Unique	24.0	Win AA12F114	1,220	10,100
1 1/4	CCI 209M	Unique	23.5	Rem SP12	1,220	10,300
1 1/4	Rem 209P	Herco	25.0	Fed 12S4	1,220	10,400
1 1/4	Rem 209P	Universal	23.7	Win AA12F114	1,220	10,600
1 1/4	Rem 209P	Unique	23.0	Fed 12S4	1,220	10,700
1 1/4	CCI 209	Universal	23.1	Win AA12F114	1,220	10,800
1 1/4	CCI 209M	Universal	23.5	Rem SP12	1,220	10,800
1 1/4	Win 209	Universal	23.5	Win AA12F114	1,220	10,900
1 1/4	CCI 209M	Universal	23.0	Win AA12F114	1,220	11,300
1 1/4	Fed 209A	Universal	22.5	Rem SP12	1,220	11,300
1 1/4	Fed 209A	SR4756	26.5	Fed 12S4	1,230	10,700
1 1/4	Fed 209A	SR4756	26.5	Rem RP12	1,235	10,500
1 1/4	Rem 209P	800-X	25.0	Windjammer	1,265	9,000
1 1/4	Rem 209P	800-X	24.5	Rem SP12	1,265	9,500
1 1/4	Fed 209A	SR7625	25.5	Rem SP12	1,265	11,500
1 1/4	Fed 209A	800-X	24.0	Rem Fig 8	1,270	10,200
1 1/4	Rem 209P	800-X	24.5	Fed 12S3	1,270	10,500
1 1/4	Fed 209A	SR4756	28.0	Win AA12R	1,270	10,600
1 1/4	Fed 209A	SR4756	27.5	Fed 12S4	1,270	11,400
1 1/4	Rem 209P	PB	24.5	Rem SP12	1,270	11,500
1 1/4	Rem 209P	Blue Dot	34.5	Rem SP12	1,275	8,600
1 1/4	Win 209	Blue Dot	35.5	Rem SP12	1,275	9,100
1 1/4	Fio 616	Blue Dot	35.5	Rem SP12	1,275	9,300
1 1/4	Rem 209P	SR4756	30.0	Rem SP12	1,275	9,300
1 1/4	Win 209	WSF	27.5	Win AA12F114	1,275	9,700
1 1/4	Win 209	800-X	24.5	Windjammer	1,275	9,700
1 1/4	CCI 209M	Blue Dot	34.5	Rem SP12	1,275	9,800
1 1/4	Fed 209A	800-X	24.0	Windjammer	1,275	9,900
1 1/4	Rem 209P	Blue Dot	34.0	Fed 12S4	1,275	10,100
1 1/4	CCI 209	WSF	27.0	Win AA12F114	1,275	10,200
1 1/4	Rem 209P	800-X	24.5	Win AA12	1,275	10,300
1 1/4	Rem 209P	Herco	26.5	Win AA12F114	1,275	10,500
1 1/4	Win 209	Herco	26.0	Rem SP12	1,275	10,600
1 1/4	Win 209	800-X	24.5	Fed 12S4	1,275	10,600
1 1/4	Rem 209P	Herco	27.0	Rem SP12	1,275	10,700
1 1/4	Fed 209A	800-X	24.0	Fed 12S3	1,275	11,200
1 1/4	Fed 209A	800-X	24.0	Win AA12	1,275	11,400
1 1/4	Win 209	800-X	24.5	Rem SP12	1,280	10,100
1 1/4	Win 209	SR7625	27.0	Win AA12R	1,280	10,200

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Rem 209P	SR7625	27.0	Win AA12R	1,280	10,300
1 1/4	Rem 209P	SR7625	27.5	Rem SP12	1,280	10,600
1 1/4	Win 209	SR7625	26.5	Rem SP12	1,280	10,800
1 1/4	Fed 209A	SR7625	26.0	Win AA12R	1,280	11,300
1 1/4	Win 209	800-X	24.5	Win AA12	1,285	11,000
1 1/4	Fed 209A	SR4756	28.0	Rem RP12	1,300	11,500
1 1/4	Fed 209A	SR4756	29.0	Win AA12R	1,315	11,400
1 1/4	Win 209	SR7625	27.5	Rem SP12	1,315	11,500
1 1/4	Rem 209P	800-X	26.0	Rem SP12	1,320	10,200
1 1/4	Rem 209P	800-X	26.0	Fed 12S3	1,320	11,400
1 1/4	Win 209	800-X	25.5	Win AA12	1,320	11,500
1 1/4	Rem 209P	800-X	26.5	Windjammer	1,325	10,000
1 1/4	Fed 209A	800-X	25.5	Rem Fig 8	1,325	11,100
1 1/4	Rem 209P	800-X	26.0	Win AA12	1,325	11,100
1 1/4	Win 209	Longshot	28.2	Win AA12F114	1,330	9,100
1 1/4	Win 209	Longshot	28.5	Rem R12L	1,330	9,300
1 1/4	Rem 209P	Blue Dot	37.5	Rem SP12	1,330	9,700
1 1/4	Fio 616	Blue Dot	35.5	Rem SP12	1,330	9,900
1 1/4	Win 209	Blue Dot	36.5	Rem SP12	1,330	9,900
1 1/4	Rem 209P	Longshot	28.5	Rem R12L	1,330	9,900
1 1/4	Win 209	Longshot	28.3	Fed 12S4	1,330	9,900
1 1/4	Win 209	HS-6	34.0	Rem R12H	1,330	10,200
1 1/4	Rem 209P	Blue Dot	37.5	CB3118-12	1,330	10,215
1 1/4	CCI 209M	Blue Dot	35.5	Rem SP12	1,330	10,300
1 1/4	Win 209	WSF	29.5	Win AA12F114	1,330	10,400
1 1/4	Win 209	HS-6	34.0	Win AA12F114	1,330	10,400
1 1/4	CCI 209M	Longshot	27.7	Rem R12L	1,330	10,600
1 1/4	Fed 209A	Longshot	27.5	Rem R12L	1,330	10,600
1 1/4	Rem 209P	Longshot	27.1	Win AA12F114	1,330	10,600
1 1/4	CCI 209	WSF	28.5	Win AA12F114	1,330	10,900
1 1/4	Fed 209A	800-X	25.5	Windjammer	1,330	10,900
1 1/4	Rem 209P	Longshot	27.4	Fed 12S4	1,330	10,900
1 1/4	CCI 209M	Longshot	27.0	Fed 12S4	1,330	11,400
1 1/4	Fed 209A	Longshot	27.3	Win AA12F114	1,330	11,400
1 1/4	Rem 209P	SR7625	28.5	Rem SP12	1,330	11,500
1 1/4	Win 209	800-X	26.0	Fed 12S4	1,330	11,500
1 1/4	CCI 209M	Longshot	26.4	Win AA12F114	1,330	11,500
1 1/4	Fed 209A	Longshot	27.0	Fed 12S4	1,330	11,500
1 1/4	Rem 209P	SR4756	31.5	Rem SP12	1,335	10,400
1 1/4	Win 209	800-X	26.0	Rem SP12	1,335	11,000
1 1/4	Rem 209P	SR7625	28.5	Win AA12R	1,335	11,400
1 1/4	Win 209	SR7625	29.0	Win AA12R	1,340	11,500
1 1/4	Win 209	Longshot	30.2	Rem R12L	1,385	10,300
1 1/4	Win 209	Longshot	30.1	Win AA12F114	1,385	10,400
1 1/4	Rem 209P	Longshot	29.9	Rem R12L	1,385	10,700
1 1/4	Win 209	Longshot	29.6	Fed 12S4	1,385	11,100
1 1/4	CCI 209M	Longshot	28.7	Rem R12L	1,385	11,500
1 1/4	Rem 209P	Longshot	28.2	Win AA12F114	1,385	11,500

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Win 209	Longshot	31.8	Rem R12L	1,440	11,200
1 3/8	Fed 209A	PB	19.5	Rem SP12	1,090	11,000
1 3/8	Fed 209A	SR7625	21.5	Win AA12R	1,100	10,800
1 3/8	Fed 209A	PB	19.5	Win AA12R	1,105	10,900
1 3/8	Fed 209A	SR7625	22.0	Rem SP12	1,110	11,200
1 3/8	Win 209	PB	20.5	Rem RP12	1,120	11,100
1 3/8	Rem 209P	PB	21.0	Rem SP12	1,130	11,000
1 3/8	Win 209	SR7625	23.0	Rem RP12	1,140	11,100
1 3/8	Win 209	SR7625	23.5	Win AA12R	1,145	10,900
1 3/8	Win 209	PB	21.5	Win AA12R	1,145	11,000
1 3/8	Rem 209P	PB	21.5	Win AA12R	1,150	10,900
1 3/8	Fed 209A	800-X	21.5	Fed 12S4	1,155	10,900
1 3/8	Rem 209P	SR7625	24.5	Rem RP12	1,165	10,800
1 3/8	Fed 209A	SR4756	26.0	Rem SP12	1,175	11,000
1 3/8	Win 209	800-X	22.5	Fed 12S3	1,180	11,100
1 3/8	Rem 209P	Longshot	24.5	Rem SP12	1,185	8,800
1 3/8	Win 209	Longshot	24.9	Rem SP12	1,185	8,800
1 3/8	Rem 209P	Longshot	23.4	G/BP Sport	1,185	9,300
1 3/8	Win 209	Longshot	23.5	G/BP Sport	1,185	9,400
1 3/8	Fed 209A	Longshot	22.9	Rem SP12	1,185	9,700
1 3/8	Win 209	Longshot	23.5	Fed 12S4	1,185	9,900
1 3/8	CCI 209M	Longshot	23.1	G/BP Sport	1,185	10,000
1 3/8	Fed 209A	Longshot	23.1	G/BP Sport	1,185	10,100
1 3/8	CCI 209M	Longshot	24.1	Rem SP12	1,185	10,300
1 3/8	Rem 209P	Longshot	23.0	Fed 12S4	1,185	10,600
1 3/8	Fed 209A	Longshot	22.5	Fed 12S4	1,185	10,800
1 3/8	Rem 209P	SR7625	25.0	Win AA12R	1,185	11,000
1 3/8	CCI 209M	Longshot	23.1	Fed 12S4	1,185	11,200
1 3/8	Fed 209A	800-X	22.5	Rem RP12	1,205	11,000
1 3/8	Fed 209A	SR4756	26.0	Win AA12R	1,205	11,100
1 3/8	Fed 209A	800-X	23.0	Win AA12R	1,215	11,000
1 3/8	Rem 209P	800-X	24.0	Fed 12S4	1,225	11,100
1 3/8	Win 209	SR4756	28.5	Win AA12R	1,230	10,900
1 3/8	Win 209	800-X	24.0	Rem SP12	1,230	11,000
1 3/8	Fio 616	Blue Dot	34.0	Rem SP12	1,240	9,100
1 3/8	Win 209	Blue Dot	35.0	Rem SP12	1,240	9,100
1 3/8	Rem 209P	Blue Dot	35.0	Rem SP12	1,240	9,300
1 3/8	CCI 209M	Blue Dot	34.0	Rem SP12	1,240	9,400
1 3/8	Rem 209P	Blue Dot	34.0	CB1138-12	1,240	9,920
1 3/8	Rem 209P	Longshot	26.1	Rem SP12	1,240	10,200
1 3/8	Win 209	Longshot	26.1	Rem SP12	1,240	10,400
1 3/8	Win 209	Longshot	25.3	G/BP Sport	1,240	10,500
1 3/8	Rem 209P	Longshot	25.2	G/BP Sport	1,240	10,800
1 3/8	Win 209	800-X	24.5	Win AA12R	1,240	10,900
1 3/8	Fed 209A	Longshot	25.0	Rem SP12	1,240	11,000
1 3/8	CCI 209M	Longshot	25.3	Rem SP12	1,240	11,300
1 3/8	CCI 209M	Longshot	24.9	G/BP Sport	1,240	11,500
1 3/8	Fed 209A	Longshot	24.7	G/BP Sport	1,240	11,500

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Win 209	SR4756	29.0	Rem RP12	1,250	11,100
1 3/8	Rem 209P	SR4756	30.0	Rem SP12	1,260	10,900
1 3/8	Rem 209P	800-X	25.5	Win AA12R	1,270	11,100
1 3/8	Rem 209P	800-X	26.5	Rem SP12	1,275	11,000
1 3/8	Win 209	HS-7	38.5	Win AA12R	1,285	9,900
1 3/8	Win 209	HS-7	38.0	Rem R12H	1,285	10,100
1 3/8	Rem 209P	SR4756	30.5	Win AA12R	1,290	11,100
1 3/8	Rem 209P	Blue Dot	36.5	Rem RP12	1,295	9,900
1 3/8	Fio 616	Blue Dot	35.5	Rem RP12	1,295	10,000
1 3/8	Rem 209P	Blue Dot	37.5	Rem SP12	1,295	10,300
1 3/8	CCI 209M	Blue Dot	35.5	Rem RP12	1,295	10,400
1 3/8	Win 209	Blue Dot	35.5	Rem RP12	1,295	10,500
1 3/8	Rem 209P	Longshot	27.7	Rem SP12	1,295	11,500
1 1/2	Fed 209A	SR7625	21.0	Rem RP12	1,040	11,000
1 1/2	Fed 209A	SR7625	21.5	Win AA12R	1,055	11,000
1 1/2	Fed 209A	SR4756	23.5	Rem RP12	1,075	11,000
1 1/2	Win 209	SR7625	23.0	Win AA12R	1,080	11,000
1 1/2	Win 209	SR7625	22.5	Rem RP12	1,080	11,200
1 1/2	Rem 209P	SR7625	23.5	Win AA12R	1,085	11,000
1 1/2	Fed 209A	SR4756	24.0	Win AA12R	1,090	11,000
1 1/2	Rem 209P	SR7625	23.5	Rem RP12	1,090	11,200
1 1/2	Win 209	SR4756	25.5	Rem RP12	1,115	11,000
1 1/2	Fed 209A	800-X	22.0	Rem RP12	1,130	11,200
1 1/2	Win 209	SR4756	26.5	Win AA12R	1,130	11,200
1 1/2	Fed 209A	800-X	22.5	Win AA12R	1,140	11,300
1 1/2	Win 209	800-X	22.5	Rem RP12	1,140	11,300
1 1/2	Fio 616	Blue Dot	31.0	Rem RP12	1,150	9,800
1 1/2	CCI 209M	Blue Dot	31.0	Rem RP12	1,150	9,900
1 1/2	Rem 209P	Blue Dot	31.0	Rem RP12	1,150	9,900
1 1/2	Win 209	Blue Dot	31.5	Rem RP12	1,150	10,100
1 1/2	Rem 209P	Blue Dot	32.0	CB1138-12	1,150	10,550
1 1/2	Win 209	800-X	23.0	Win AA12R	1,150	11,200
1 1/2	Rem 209P	SR4756	27.0	Rem RP12	1,150	11,200
1 1/2	Rem 209P	800-X	23.0	Rem RP12	1,155	11,200
1 1/2	Rem 209P	SR4756	27.5	Win AA12R	1,160	11,000
1 1/2	Rem 209P	800-X	23.5	Win AA12R	1,170	11,200
1 1/2	CCI 209M	Blue Dot	33.0	Rem RP12	1,205	10,100
1 1/2	Fio 616	Blue Dot	33.0	Rem RP12	1,205	10,100
1 1/2	Rem 209P	Blue Dot	33.0	Rem RP12	1,205	10,200
1 1/2	Win 209	Blue Dot	33.0	Rem RP12	1,205	10,200
1 1/2	Win 209	Longshot	25.6	Rem RP12	1,205	10,400
1 1/2	Win 209	Longshot	26.1	Win AA12R	1,205	10,500
1 1/2	Rem 209P	Longshot	24.8	Win AA12R	1,205	11,000
1 1/2	Rem 209P	Longshot	25.0	Rem RP12	1,205	11,500
1 1/2	Win 209	HS-7	35.5	Win AA12R	1,260	10,300
1 1/2	Fed 209	HS-7	36.0	Rem R12H	1,260	10,600
1 1/2	Win 209	Longshot	27.0	Win AA12R	1,260	11,300
24 Grams	Rem 209P	SR7625	22.0*	Rem Fig 8	1,140	4,200

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

(Continued) **Hull #24**

12 Gauge 2 ¾"

Hull I.D. Page 93

Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
24 Grams	Rem 209P	PB	19.5	CB1100-12	1,140	4,300
24 Grams	Fed 209A	PB	18.0	CB1100-12	1,140	5,100
24 Grams	Fed 209A	SR7625	21.0	Activ TG-30	1,140	5,100
24 Grams	Rem 209P	PB	19.0	Activ TG-30	1,140	5,200
24 Grams	Fed 209A	700-X	14.5*	Win AA12SL	1,140	6,500
24 Grams	Rem 209P	SR7625	23.5	CB1100-12	1,145	3,200
24 Grams	Rem 209P	PB	19.0	Fed 12S0	1,145	5,300
24 Grams	Rem 209P	PB	18.5	Win AA12SL	1,145	5,400
24 Grams	Fed 209A	PB	18.0	Rem TGT12	1,145	5,500
24 Grams	Fed 209A	SR7625	21.5	CB1100-12	1,150	4,600
24 Grams	Fed 209A	SR7625	22.0*	Rem Fig 8	1,150	4,700
24 Grams	Rem 209P	700-X	15.0	CB2100-12	1,150	5,700
24 Grams	Rem 209P	700-X	15.0*	Rem TGT12	1,150	5,800
24 Grams	Fed 209A	PB	18.5	Activ TG-30	1,150	5,800
24 Grams	Rem 209P	700-X	15.0	Fed 12S0	1,150	6,100
24 Grams	Rem 209P	SR7625	21.5	Fed 12S0	1,155	4,600
24 Grams	Rem 209P	PB	19.5	Rem TGT12	1,155	4,800
24 Grams	Rem 209P	SR7625	21.5	Win AA12SL	1,155	4,800
24 Grams	Rem 209P	SR7625	21.5	Activ TG-30	1,155	4,900
24 Grams	Fed 209A	SR7625	21.5	Fed 12S0	1,155	5,300
24 Grams	Rem 209P	700-X	15.5*	CB1100-12	1,155	5,500
24 Grams	Fed 209A	700-X	15.0*	CB1100-12	1,155	5,900
24 Grams	Fed 209A	700-X	15.0	CB2100-12	1,155	6,100
24 Grams	Fed 209A	PB	18.0	Fed 12S0	1,155	6,300
24 Grams	Rem 209P	700-X	15.0*	Win AA12SL	1,155	6,400
24 Grams	Rem 209P	700-X	15.0	Activ TG-30	1,155	6,400
24 Grams	Fed 209A	PB	17.5	Win AA12SL	1,155	6,400
24 Grams	Fed 209A	700-X	14.5	Activ TG-30	1,155	6,900
24 Grams	Fed 209A	700-X	15.0*	Rem TGT12	1,160	6,500
24 Grams	Fed 209A	700-X	15.0	Fed 12S0	1,160	6,600
24 Grams	Fed 209A	PB	19.5	Activ TG-30	1,190	6,300
24 Grams	Rem 209P	PB	20.5	Rem TGT12	1,195	5,200
24 Grams	Fed 209A	SR7625	23.0*	Rem Fig 8	1,195	5,200
24 Grams	Rem 209P	PB	19.5	Win AA12SL	1,195	6,200
24 Grams	Fed 209A	SR7625	21.5	Win AA12SL	1,195	6,200
24 Grams	Fed 209A	PB	19.0	Fed 12S0	1,195	6,900
24 Grams	Fed 209A	700-X	15.5*	Win AA12SL	1,195	7,300
24 Grams	Fed 209A	SR7625	22.5	Fed 12S0	1,200	5,700
24 Grams	Fed 209A	SR7625	22.5	Activ TG-30	1,200	5,700
24 Grams	Rem 209P	700-X	16.0*	Rem TGT12	1,200	6,600
24 Grams	Rem 209P	700-X	16.0	CB2100-12	1,200	6,600
24 Grams	Fed 209A	PB	18.5	Win AA12SL	1,200	7,100
24 Grams	Fed 209A	700-X	15.5	Activ TG-30	1,200	7,600
24 Grams	Rem 209P	SR7625	25.0	CB1100-12	1,205	3,800
24 Grams	Rem 209P	SR7625	23.5*	Rem Fig 8	1,205	4,900
24 Grams	Rem 209P	PB	21.0	CB1100-12	1,205	5,100
24 Grams	Rem 209P	SR7625	23.0	Win AA12SL	1,205	5,300
24 Grams	Fed 209A	PB	19.5	CB1100-12	1,205	6,100
24 Grams	Fed 209A	PB	19.5	Rem TGT12	1,205	6,300

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

Hull #24 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
24 Grams	Fed 209A	700-X	16.0*	CB1100-12	1,205	6,700
24 Grams	Rem 209P	700-X	16.0	Fed 12S0	1,205	7,200
24 Grams	Fed 209A	SR7625	23.0	CB1100-12	1,210	5,100
24 Grams	Rem 209P	SR7625	23.0	Activ TG-30	1,210	5,200
24 Grams	Rem 209P	SR7625	23.0	Fed 12S0	1,210	5,300
24 Grams	Rem 209P	PB	20.5	Activ TG-30	1,210	6,000
24 Grams	Rem 209P	PB	20.5	Fed 12S0	1,210	6,300
24 Grams	Rem 209P	700-X	16.5*	CB1100-12	1,210	6,400
24 Grams	Fed 209A	700-X	16.0	CB2100-12	1,210	6,800
24 Grams	Rem 209P	700-X	16.0*	Win AA12SL	1,210	7,200
24 Grams	Rem 209P	700-X	16.0	Activ TG-30	1,210	7,300
24 Grams	Fed 209A	700-X	16.0*	Rem TGT12	1,210	7,400
24 Grams	Fed 209A	700-X	16.0	Fed 12S0	1,210	7,400
24 Grams	Rem 209P	SR7625	24.5*	Rem Fig 8	1,245	5,300
24 Grams	Fed 209A	SR7625	23.5	Activ TG-30	1,245	6,200
24 Grams	Fed 209A	700-X	16.5*	Win AA12SL	1,245	8,200
24 Grams	Rem 209P	SR7625	26.0	CB1100-12	1,250	4,400
24 Grams	Rem 209P	PB	22.0	CB1100-12	1,250	5,600
24 Grams	Fed 209A	SR7625	24.0	CB1100-12	1,250	5,600
24 Grams	Rem 209P	SR7625	24.0	Fed 12S0	1,250	5,800
24 Grams	Fed 209A	PB	20.5	Rem TGT12	1,250	6,700
24 Grams	Fed 209A	PB	20.5	CB1100-12	1,250	6,800
24 Grams	Fed 209A	SR7625	23.0	Win AA12SL	1,250	6,800
24 Grams	Rem 209P	700-X	17.0*	Rem TGT12	1,250	7,300
24 Grams	Rem 209P	700-X	17.0	CB2100-12	1,250	7,400
24 Grams	Fed 209A	700-X	16.5	Activ TG-30	1,250	8,300
24 Grams	Rem 209P	SR7625	24.5	Win AA12SL	1,255	5,800
24 Grams	Rem 209P	PB	21.5	Activ TG-30	1,255	6,500
24 Grams	Rem 209P	PB	21.5	Fed 12S0	1,255	6,800
24 Grams	Fed 209A	PB	21.0	Activ TG-30	1,255	7,100
24 Grams	Fed 209A	700-X	17.0*	CB1100-12	1,255	7,600
24 Grams	Fed 209A	PB	20.5	Fed 12S0	1,255	7,800
24 Grams	Rem 209P	700-X	17.0*	Win AA12SL	1,255	7,900
24 Grams	Rem 209P	SR7625	24.5	Activ TG-30	1,260	5,600
24 Grams	Rem 209P	PB	22.0	Rem TGT12	1,260	6,000
24 Grams	Fed 209A	SR7625	24.5*	Rem Fig 8	1,260	6,000
24 Grams	Fed 209A	SR7625	24.0	Fed 12S0	1,260	6,500
24 Grams	Rem 209P	700-X	17.5*	CB1100-12	1,260	7,200
24 Grams	Fed 209A	700-X	17.0	CB2100-12	1,260	7,600
24 Grams	Fed 209A	700-X	17.0	Fed 12S0	1,260	8,100
24 Grams	Rem 209P	700-X	17.0	Fed 12S0	1,260	8,200
24 Grams	Rem 209P	700-X	17.0	Activ TG-30	1,260	8,200
24 Grams	Rem 209P	PB	21.0	Win AA12SL	1,265	7,300
24 Grams	Fed 209A	PB	20.0	Win AA12SL	1,265	8,100
24 Grams	Fed 209A	700-X	17.0*	Rem TGT12	1,265	8,300
24 Grams	Rem 209P	SR7625	27.5	CB1100-12	1,320	5,300
24 Grams	Rem 209P	SR7625	26.0	Activ TG-30	1,320	6,300
24 Grams	Fed 209A	SR7625	26.0*	Rem Fig 8	1,320	6,800
24 Grams	Fed 209A	SR7625	25.0	Win AA12SL	1,320	7,500

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

Remington One-Piece Premier, RTL, STS, Nitro 27 Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Charge (Grains)	Powder Column	Wad	Velocity (fps)	Pressure (psi)
24 Grams	Fed 209A	PB	22.5	Activ TG-30		1,320	8,000
24 Grams	Fed 209A	PB	22.0	Fed 12S0		1,320	8,700
24 Grams	Rem 209P	700-X	18.5*	Win AA12SL		1,320	8,900
24 Grams	Fed 209A	700-X	18.0	Activ TG-30		1,320	9,600
24 Grams	Rem 209P	SR7625	26.5*	Rem Fig 8		1,325	6,200
24 Grams	Rem 209P	SR7625	26.0	Win AA12SL		1,325	6,800
24 Grams	Rem 209P	PB	23.5	Rem TGT12		1,325	6,900
24 Grams	Fed 209A	SR7625	25.5	Activ TG-30		1,325	7,200
24 Grams	Fed 209A	SR7625	25.0	Fed 12S0		1,325	7,300
24 Grams	Rem 209P	PB	22.5	Win AA12SL		1,325	8,000
24 Grams	Fed 209A	700-X	18.5	CB2100-12		1,325	8,600
24 Grams	Fed 209A	700-X	18.5	Fed 12S0		1,325	9,200
24 Grams	Rem 209P	PB	24.0	CB1100-12		1,330	6,400
24 Grams	Fed 209A	SR7625	26.0	CB1100-12		1,330	6,500
24 Grams	Fed 209A	PB	22.5	CB1100-12		1,330	7,800
24 Grams	Fed 209A	PB	22.5	Rem TGT12		1,330	7,800
24 Grams	Rem 209P	700-X	18.5	CB2100-12		1,330	8,600
24 Grams	Fed 209A	700-X	18.5*	CB1100-12		1,330	8,900
24 Grams	Fed 209A	PB	21.5	Win AA12SL		1,330	9,000
24 Grams	Rem 209P	700-X	18.5	Activ TG-30		1,330	9,300
24 Grams	Rem 209P	SR7625	26.0	Fed 12S0		1,335	6,900
24 Grams	Rem 209P	PB	23.5	Activ TG-30		1,335	7,500
24 Grams	Rem 209P	PB	23.5	Fed 12S0		1,335	7,700
24 Grams	Rem 209P	700-X	19.0*	CB1100-12		1,335	8,400
24 Grams	Rem 209P	700-X	19.0*	Rem TGT12		1,335	8,700
24 Grams	Fed 209A	700-X	18.5*	Rem TGT12		1,335	9,600
24 Grams	Fed 209A	700-X	18.5*	Win AA12SL		1,335	10,000
24 Grams	Rem 209P	700-X	18.5	Fed 12S0		1,340	9,800
24 Grams	Rem 209P	American Select	21.0	Purple PC		1,345	8,100
24 Grams	Rem 209P	Red Dot	20.5	Purple PC		1,345	8,300
24 Grams	Rem 209P	American Select	20.5	Rem TGT12		1,345	8,500
24 Grams	Rem 209P	American Select	20.5	CB1100-12		1,345	8,700
24 Grams	Rem 209P	American Select	20.5	Win AA12L		1,345	8,700
24 Grams	Rem 209P	Red Dot	20.5	CB1100-12		1,345	8,800
24 Grams	Rem 209P	Red Dot	20.5	Rem TGT12		1,345	9,200
24 Grams	Rem 209P	American Select	20.5	Fed 12S0		1,345	9,600
24 Grams	Rem 209P	Red Dot	20.0	Fed 12S0		1,345	9,800
24 Grams	Rem 209P	Red Dot	20.5	Win AA12L		1,345	9,800
28 Grams	Rem 209P	Unique	27.0	Purple PC		1,345	7,800
28 Grams	Rem 209P	Unique	26.0	Rem Fig 8		1,345	8,300
28 Grams	Rem 209P	Unique	27.0	Win AA12SL		1,345	8,500
28 Grams	Rem 209P	Green Dot	23.0	Rem Fig 8		1,345	9,700
28 Grams	Rem 209P	Green Dot	24.0	Purple PC		1,345	9,900
28 Grams	Rem 209P	Green Dot	23.0	Win AA12SL		1,345	10,100
28 Grams	Rem 209P	Green Dot	23.0	Fed 12S3		1,345	10,300
28 Grams	Rem 209P	Red Dot	21.5	Purple PC		1,345	10,600
28 Grams	Rem 209P	Red Dot	21.5	Rem Fig 8		1,345	10,600

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)
28 Gram Loads = 432.1 Grains (1 oz. Load = 437.5 Grains)

Hull #26

12 Gauge 2 ¾"

Hull I.D. Page 94

Reference Notes Page 112

Remington One-Piece Unibody SP Plastic Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209M	Green Dot	22.5	Rem R12L	1,290	8,100
1	CCI 209	Green Dot	23.5	Rem R12L	1,290	8,100
1	Win 209	Green Dot	21.5	Rem R12L	1,290	8,800
1	Rem 209	Green Dot	22.0	Rem R12L	1,290	9,200
1	CCI 209	Red Dot	21.0	Rem R12L	1,290	9,700
1	Rem 209	Green Dot	21.0	Win AA12F1	1,290	9,900
1	Rem 209	Green Dot	21.5	Rem RXP12	1,290	9,900
1	CCI 209M	Red Dot	20.0	Rem R12L	1,290	10,600
1	Win 209	Red Dot	20.0	Rem R12L	1,290	10,700
1 1/8	Rem 209	Green Dot	18.0	Hor Versalite	1,145	8,500
1 1/8	Rem 209	Green Dot	19.0	Rem R12H	1,145	8,500
1 1/8	Win 209	Green Dot	18.5	Rem RXP12	1,145	8,800
1 1/8	Rem 209	Green Dot	19.0	Rem RXP12	1,145	8,800
1 1/8	Rem 209	Red Dot	17.0	Hor Versalite	1,145	8,800
1 1/8	CCI 209M	Green Dot	18.5	Rem RXP12	1,145	9,100
1 1/8	CCI 209	Green Dot	18.5	Rem RXP12	1,145	9,200
1 1/8	Rem 209	Green Dot	19.0	Fed 12S3	1,145	9,200
1 1/8	Rem 209	Red Dot	17.5	Rem R12H	1,145	9,300
1 1/8	Rem 209	Green Dot	17.5	Win AA12	1,145	10,000
1 1/8	Rem 209	Red Dot	17.0	Fed 12S3	1,145	10,100
1 1/8	CCI 209	Red Dot	18.0	Rem RXP12	1,145	10,100
1 1/8	CCI 209M	Red Dot	17.0	Rem RXP12	1,145	10,200
1 1/8	Rem 209	Red Dot	17.0	Win AA12	1,145	10,200
1 1/8	Win 209	Red Dot	17.0	Rem RXP12	1,145	10,500
1 1/8	Rem 209	Unique	22.0	Windjammer	1,200	7,700
1 1/8	Rem 209	Unique	21.0	Hor Versalite	1,200	8,200
1 1/8	Rem 209	Green Dot	20.5	Windjammer	1,200	8,300
1 1/8	Rem 209	Unique	21.5	Rem R12H	1,200	8,300
1 1/8	CCI 209	Unique	23.0	Rem RXP12	1,200	8,300
1 1/8	Rem 209	Unique	21.5	Win AA12	1,200	8,400
1 1/8	CCI 209	Green Dot	21.0	Rem RXP12	1,200	8,800
1 1/8	Rem 209	Unique	21.5	Fed 12S3	1,200	8,800
1 1/8	CCI 209M	Unique	22.0	Rem RXP12	1,200	8,800
1 1/8	Win 209	Unique	22.0	Rem RXP12	1,200	8,900
1 1/8	Rem 209	Unique	22.0	Rem RXP12	1,200	9,100
1 1/8	Rem 209	Green Dot	19.5	Rem R12H	1,200	9,400
1 1/8	Rem 209	Red Dot	18.5	Windjammer	1,200	9,600
1 1/8	Rem 209	Green Dot	20.0	Rem RXP12	1,200	9,800
1 1/8	Win 209	Green Dot	20.5	Rem RXP12	1,200	9,800
1 1/8	Rem 209	Green Dot	19.0	Hor Versalite	1,200	9,900
1 1/8	Rem 209	Green Dot	19.5	Win AA12	1,200	10,000
1 1/8	CCI 209M	Green Dot	20.0	Rem RXP12	1,200	10,000
1 1/8	Rem 209	Red Dot	18.0	Hor Versalite	1,200	10,000
1 1/8	Rem 209	Red Dot	18.0	Rem R12H	1,200	10,000
1 1/8	Rem 209	Red Dot	18.0	Rem RXP12	1,200	10,500
1 1/8	Rem 209	Unique	22.5	Rem R12H	1,255	8,300
1 1/8	CCI 209	Unique	23.0	Rem RXP12	1,255	8,800
1 1/8	Rem 209	Unique	22.5	Rem RXP12	1,255	9,200

12

12 Gauge 2 ¾"
Lead Shot Load Data

Remington One-Piece Unibody SP Plastic Shell

(Continued) **Hull #26**

12 Gauge 2 ¾"

Hull I.D. Page 94
Reference Notes Page 112

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209	Unique	22.5	Win AA12	1,255	9,200
1 1/8	CCI 209M	Unique	23.0	Rem RXP12	1,255	9,700
1 1/8	Rem 209	Unique	22.5	Fed 12S3	1,255	9,800
1 1/8	Win 209	Unique	23.5	Rem RXP12	1,255	9,800
1 1/8	CCI 209M	Green Dot	21.0	Rem RXP12	1,255	10,100
1 1/8	Rem 209	Green Dot	20.5	Rem RXP12	1,255	10,300
1 1/8	Rem 209	Green Dot	21.0	Rem R12H	1,255	10,400
1 1/8	CCI 209	Green Dot	22.5	Rem RXP12	1,255	10,500
1 1/8	Win 209	Green Dot	21.5	Rem RXP12	1,255	10,700
1 1/8	CCI 209	Herco	27.0	Rem R12H	1,310	9,300
1 1/8	CCI 209	Unique	25.5	Rem R12H	1,310	9,600
1 1/8	Rem 209	Unique	24.0	Rem RXP12	1,310	10,000
1 1/8	Rem 209	Herco	25.5	Rem R12H	1,310	10,100
1 1/8	Rem 209	Unique	24.5	Rem R12H	1,310	10,100
1 1/8	Rem 209	Herco	24.5	Win AA12	1,310	10,200
1 1/8	Rem 209	Herco	25.5	Rem RXP12	1,310	10,200
1 1/8	CCI 209M	Herco	26.5	Rem R12H	1,310	10,300
1 1/8	Rem 209	Unique	24.0	Win AA12	1,310	10,300
1 1/8	Win 209	Herco	26.5	Rem R12H	1,310	10,700
1 1/8	CCI 209M	Unique	25.0	Rem R12H	1,310	10,700
1 1/8	Win 209	Unique	25.0	Rem R12H	1,310	10,700
1 1/4	CCI 209M	Blue Dot	32.0	Rem SP12	1,220	8,500
1 1/4	Win 209	Blue Dot	33.0	Rem SP12	1,220	9,000
1 1/4	CCI 209	Herco	25.5	Rem SP12	1,220	9,100
1 1/4	Rem 209	Herco	23.5	Rem SP12	1,220	9,400
1 1/4	CCI 209	Unique	24.5	Rem SP12	1,220	9,600
1 1/4	Rem 209	Unique	22.5	Rem SP12	1,220	9,700
1 1/4	Rem 209	Herco	23.0	Win AA12F114	1,220	10,100
1 1/4	CCI 209M	Unique	23.0	Rem SP12	1,220	10,100
1 1/4	Rem 209	Blue Dot	30.0	Win AA12F114	1,220	10,300
1 1/4	Win 209	Herco	24.5	Rem SP12	1,220	10,500
1 1/4	Win 209	Unique	23.0	Rem SP12	1,220	10,600
1 1/4	CCI 209	Blue Dot	35.5	Rem SP12	1,275	8,900
1 1/4	CCI 209M	Blue Dot	33.5	Rem SP12	1,275	9,800
1 1/4	Rem 209	Blue Dot	32.0	Win AA12F114	1,275	10,000
1 1/4	Rem 209	Blue Dot	32.0	Rem SP12	1,275	10,200
1 1/4	Win 209	Blue Dot	35.0	Rem SP12	1,275	10,300
1 1/4	CCI 209	Blue Dot	37.5	Rem RP12	1,330	9,700
1 1/4	CCI 209M	Blue Dot	35.5	Rem RP12	1,330	10,400
1 3/8	CCI 209	Blue Dot	36.0	Rem RP12	1,240	10,100
1 3/8	CCI 209M	Blue Dot	32.5	Rem RP12	1,240	10,500
1 1/2	Rem 209P	Blue Dot	32.5	Rem RP12	1,150	8,000
1 1/2	Win 209	Blue Dot	32.0	Rem RP12	1,150	8,300
1 1/2	CCI 209M	Blue Dot	32.0	Rem RP12	1,150	8,400
1 1/2	Fio 616	Blue Dot	31.5	Rem RP12	1,150	9,200

Hull #27

12 Gauge 2 ¾"

Hull I.D. Page 94

Reference Notes Page 112

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Green Dot	24.0	Purple PC	1,290	6,800
1	Win 209	Green Dot	23.5	Win AA12F1	1,290	7,000
1	Fio 616	Green Dot	23.0	Win AA12F1	1,290	7,400
1	CCI 209M	Green Dot	23.0	Win AA12F1	1,290	7,500
1	Win 209	Red Dot	22.0	Win AA12F1	1,290	7,600
1	Win 209	Green Dot	23.0	Rem Fig 8	1,290	7,800
1	Rem 209P	Red Dot	21.5	Win AA12F1	1,290	7,800
1	Fio 616	Red Dot	21.5	Win AA12F1	1,290	7,900
1	Win 209	Red Dot	21.5	Purple PC	1,290	7,900
1	Fed 209	Red Dot	21.0	Win AA12F1	1,290	8,200
1	CCI 209M	Red Dot	21.0	Win AA12F1	1,290	8,400
1	Win 209	Red Dot	21.5	Rem Fig 8	1,290	8,500
1	Win 209	Red Dot	21.0	Fed 12SO	1,290	9,600
1 1/8	Win 209	Green Dot	18.5	Hor Versalite	1,090	6,700
1 1/8	Win 209	Green Dot	18.5	Rem Fig 8	1,090	6,700
1 1/8	Rem 209P	Red Dot	16.5	Win AA12	1,090	6,700
1 1/8	Win 209	Red Dot	17.0	Rem Fig 8	1,090	6,900
1 1/8	CCI 209M	Green Dot	18.5	Win AA12	1,090	7,000
1 1/8	Fio 616	Green Dot	18.5	Win AA12	1,090	7,100
1 1/8	Win 209	Red Dot	17.0	Red PC	1,090	7,500
1 1/8	Fio 616	Red Dot	17.0	Win AA12	1,090	7,600
1 1/8	Win 209	Red Dot	16.5	Win AA12	1,090	7,800
1 1/8	Win 209	Red Dot	17.5	Fed 12S3	1,090	7,800
1 1/8	Win 209	Red Dot	16.5	Hor Versalite	1,090	7,900
1 1/8	CCI 209M	Red Dot	17.0	Win AA12	1,090	8,000
1 1/8	Fio 616	Green Dot	20.0	Win AA12	1,145	6,800
1 1/8	Win 209	Green Dot	20.5	Red PC	1,145	6,800
1 1/8	Win 209	Green Dot	19.5	Rem Fig 8	1,145	7,000
1 1/8	Win 209	Green Dot	20.0	Hor Versalite	1,145	7,200
1 1/8	Win 209	Green Dot	20.5	Win AA12	1,145	7,300
1 1/8	CCI 209M	Green Dot	20.0	Win AA12	1,145	7,400
1 1/8	Win 209	Red Dot	18.5	Red PC	1,145	7,800
1 1/8	Win 209	Red Dot	18.0	Rem Fig 8	1,145	8,000
1 1/8	Rem 209P	Red Dot	18.5	Win AA12	1,145	8,100
1 1/8	Fio 616	Red Dot	18.5	Win AA12	1,145	8,300
1 1/8	Win 209	Red Dot	18.0	Win AA12	1,145	8,500
1 1/8	Win 209	Red Dot	18.0	Hor Versalite	1,145	8,600
1 1/8	Win 209	Red Dot	18.0	Fed 12S3	1,145	8,900
1 1/8	CCI 209M	Red Dot	18.0	Win AA12	1,145	9,000
1 1/8	CCI 209SC	Universal	25.0	Windjammer	1,200	6,800
1 1/8	Fio 616	Unique	23.5	Win AA12	1,200	7,200
1 1/8	Win 209	Unique	23.0	Rem Fig 8	1,200	7,400
1 1/8	Fio 616	Green Dot	21.5	Win AA12	1,200	7,600
1 1/8	Win 209	Green Dot	22.0	Red PC	1,200	7,600
1 1/8	Win 209	Unique	23.0	Win AA12	1,200	7,600
1 1/8	Win 209	Unique	23.5	Red PC	1,200	7,600
1 1/8	Win 209	Green Dot	21.5	Hor Versalite	1,200	7,700
1 1/8	Win 209	Unique	23.0	Hor Versalite	1,200	7,700

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Unique	23.5	Win AA12	1,200	7,900
1 1/8	Win 209	Universal	24.0	Win AA12	1,200	7,900
1 1/8	CCI 209M	Universal	24.5	Windjammer	1,200	8,000
1 1/8	Fed 209A	Universal	24.0	Rem Fig 8	1,200	8,000
1 1/8	Win 209	Green Dot	21.5	Rem Fig 8	1,200	8,200
1 1/8	Win 209	Green Dot	21.5	Fed 12S3	1,200	8,300
1 1/8	Win 209	Unique	23.5	Fed 12S3	1,200	8,300
1 1/8	Win 209	Red Dot	19.5	Red PC	1,200	8,400
1 1/8	Win 209	Green Dot	22.0	Win AA12	1,200	8,700
1 1/8	Win 209	Red Dot	19.0	Rem Fig 8	1,200	8,700
1 1/8	Win 209	Red Dot	19.5	Win AA12	1,200	8,900
1 1/8	Rem 209P	Red Dot	19.5	Win AA12	1,200	9,000
1 1/8	Fio 616	Red Dot	19.5	Win AA12	1,200	9,300
1 1/8	Win 209	Red Dot	19.0	Hor Versalite	1,200	9,400
1 1/8	Win 209	Red Dot	19.0	Fed 12S3	1,200	9,600
1 1/8	CCI 209SC	Universal	26.5	Windjammer	1,255	7,200
1 1/8	Rem 209P	Unique	25.5	Win AA12	1,255	7,700
1 1/8	Win 209	Unique	25.0	Red PC	1,255	7,900
1 1/8	Win 209	Green Dot	23.5	Red PC	1,255	8,000
1 1/8	Fio 616	Unique	25.0	Win AA12	1,255	8,000
1 1/8	Win 209	Unique	25.0	Hor Versalite	1,255	8,000
1 1/8	Win 209	Green Dot	24.0	Hor Versalite	1,255	8,300
1 1/8	Win 209	Unique	25.0	Fed 12S3	1,255	8,400
1 1/8	CCI 209M	Unique	25.0	Win AA12	1,255	8,500
1 1/8	Win 209	Unique	25.0	Win AA12	1,255	8,500
1 1/8	Fio 616	Green Dot	23.0	Win AA12	1,255	8,600
1 1/8	Win 209	Green Dot	23.5	Fed 12S3	1,255	8,600
1 1/8	CCI 209M	Universal	25.8	Windjammer	1,255	8,600
1 1/8	CCI 209M	Green Dot	23.0	Win AA12	1,255	8,800
1 1/8	Win 209	Green Dot	23.5	Win AA12	1,255	8,800
1 1/8	Fed 209A	Universal	24.8	Rem Fig 8	1,255	8,900
1 1/8	Win 209	Universal	25.3	Win AA12	1,255	9,000
1 1/8	Win 209	Red Dot	21.0	Win AA12	1,255	9,400
1 1/8	Rem 209P	Red Dot	21.5	Win AA12	1,255	9,500
1 1/8	Win 209	Red Dot	21.5	Hor Versalite	1,255	9,700
1 1/8	Win 209	Red Dot	21.0	Red PC	1,255	9,900
1 1/8	CCI 209M	Red Dot	21.5	Win AA12	1,255	10,000
1 1/8	Fio 616	Red Dot	21.5	Win AA12	1,255	10,100
1 1/8	CCI 209SC	Universal	27.5	Windjammer	1,310	7,900
1 1/8	CCI 209M	Unique	26.0	Win AA12	1,310	8,500
1 1/8	Win 209	Unique	26.5	Red PC	1,310	8,600
1 1/8	Win 209	Unique	26.5	Win AA12	1,310	8,600
1 1/8	Win 209	Green Dot	25.5	Red PC	1,310	8,700
1 1/8	Rem 209P	Green Dot	25.0	Win AA12	1,310	8,800
1 1/8	Fio 616	Green Dot	24.5	Win AA12	1,310	8,900
1 1/8	Win 209	Green Dot	25.0	Hor Versalite	1,310	8,900
1 1/8	Win 209	Green Dot	25.5	Win AA12	1,310	8,900
1 1/8	CCI 209M	Green Dot	25.0	Win AA12	1,310	9,000

Hull #27 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 94

Reference Notes Page 112

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Unique	26.5	Hor Versalite	1,310	9,000
1 1/8	Rem 209P	Unique	27.0	Win AA12	1,310	9,000
1 1/8	Fio 616	Unique	27.5	Win AA12	1,310	9,200
1 1/8	CCI 209M	Red Dot	22.0	Win AA12	1,310	9,400
1 1/8	Win 209	Unique	26.0	Fed 12S3	1,310	9,400
1 1/8	Fed 209A	Universal	26.0	Rem Fig 8	1,310	9,400
1 1/8	CCI 209M	Universal	26.2	Windjammer	1,310	9,600
1 1/8	Win 209	Green Dot	24.5	Fed 12S3	1,310	9,900
1 1/8	Win 209	Universal	26.0	Win AA12	1,310	10,100
1 1/8	Rem 209P	Red Dot	22.5	Win AA12	1,310	10,200
1 1/8	Win 209	Red Dot	22.5	Red PC	1,310	10,200
1 1/8	Win 209	Red Dot	22.5	Hor Versalite	1,310	10,300
1 1/8	Fio 616	Red Dot	22.5	Win AA12	1,310	10,600

Hull #28

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	American Select	18.5	CB4100-12B	1,200	5,605
7/8	Rem 209P	Clays	18.2	Rem TGT12	1,200	6,000
7/8	Win 209	American Select	17.6	Win AA12L	1,200	6,200
7/8	CCI 209SC	Clays	16.3	Rem TGT12	1,200	6,500
7/8	Rem 209P	Clays	16.8	Win AA12L	1,200	6,800
7/8	Win 209	Red Dot	17.5	CB4100-12B	1,200	6,900
7/8	Fed 209A	Clays	16.0	Rem TGT12	1,200	6,900
7/8	CCI 209M	Clays	16.5	Rem TGT12	1,200	7,100
7/8	Rem 209P	Clays	16.8	Fed 12SO	1,200	7,100
7/8	Win 209	Clays	15.8	Rem TGT12	1,200	7,100
7/8	Win 209	Clays	16.9	Win AA12SL	1,200	7,100
7/8	Win 209	Red Dot	16.5	Rem TGT12	1,200	7,300
7/8	Win 209	Red Dot	16.5	Win AA12SL	1,200	7,300
7/8	Win 209	Clays	17.1	Fed 12SO	1,200	7,400
7/8	Win 209	Red Dot	17.0	Purple PC	1,200	7,500
7/8	CCI 209M	Clays	15.8	Win AA12L	1,200	7,500
7/8	CCI 209SC	Clays	16.0	Win AA12L	1,200	7,600
7/8	Win 209	Red Dot	16.5	Win AA12L	1,200	7,900
7/8	Win 209	Red Dot	16.0	Fed 12SO	1,200	8,000
7/8	CCI 209SC	Clays	16.0	Fed 12SO	1,200	8,800
7/8	Win 209	American Select	19.5	CB4100-12B	1,250	6,110
7/8	Rem 209P	Clays	18.9	Rem TGT12	1,250	6,800
7/8	Rem 209P	International	20.5	Rem TGT12	1,250	6,800
7/8	Ched 209	International	20.0	Win AA12L	1,250	7,000
7/8	CCI 209SC	Clays	17.6	Rem TGT12	1,250	7,100

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	International	19.2	Rem TGT12	1,250	7,100
7/8	Win 209	American Select	18.5	Win AA12L	1,250	7,200
7/8	Win 209	Clays	18.1	Win AA12SL	1,250	7,400
7/8	CCI 209M	International	19.0	Rem TGT12	1,250	7,400
7/8	Rem 209P	Clays	18.1	Win AA12L	1,250	7,500
7/8	Rem 209P	International	20.0	Win AA12L	1,250	7,500
7/8	CCI 209M	International	18.8	Win AA12L	1,250	7,600
7/8	Win 209	Red Dot	18.0	CB4100-12B	1,250	7,630
7/8	CCI 209SC	Titewad	17.7	Rem TGT12	1,250	7,800
7/8	Fed 209A	Titewad	18.5	Fed 12SO	1,250	7,800
7/8	CCI 209M	Clays	17.5	Rem TGT12	1,250	7,800
7/8	CCI 209SC	International	19.0	Rem TGT12	1,250	7,800
7/8	Fed 209A	International	20.0	Win AA12SL	1,250	7,800
7/8	Win 209	International	20.5	Win AA12SL	1,250	7,900
7/8	Win 209	Clays	18.0	Fed 12SO	1,250	8,000
7/8	Win 209	Clays	17.4	Rem TGT12	1,250	8,000
7/8	Fio 616	Titewad	17.5	Rem TGT12	1,250	8,100
7/8	CCI 209SC	International	19.2	Win AA12L	1,250	8,100
7/8	Win 209	International	19.5	Fed 12SO	1,250	8,100
7/8	CCI 209M	International	19.0	Fed 12SO	1,250	8,200
7/8	Rem 209P	Titewad	17.2	Rem TGT12	1,250	8,300
7/8	Win 209	Clays	18.3	Win AA12L	1,250	8,300
7/8	Fed 209A	International	18.6	Rem TGT12	1,250	8,300
7/8	Win 209	Red Dot	18.0	Purple PC	1,250	8,400
7/8	Win 209	Red Dot	18.0	Rem TGT12	1,250	8,400
7/8	Fed 209A	Clays	18.0	Win AA12L	1,250	8,400
7/8	Rem 209P	Titewad	18.0	Win AA12L	1,250	8,500
7/8	Fed 209A	Clays	18.0	Win AA12SL	1,250	8,500
7/8	Win 209	Red Dot	17.5	Win AA12L	1,250	8,600
7/8	Win 209	Titewad	17.8	Win AA12L	1,250	8,600
7/8	Rem 209P	Clays	18.0	Fed 12SO	1,250	8,600
7/8	CCI 209SC	Titewad	17.3	Win AA12L	1,250	8,800
7/8	Win 209	Red Dot	17.5	Fed 12SO	1,250	9,000
7/8	Rem 209P	Titewad	17.4	Fed 12SO	1,250	9,200
7/8	CCI 209M	Clays	17.1	Win AA12L	1,250	9,200
7/8	Win 209	Red Dot	18.0	Win AA12SL	1,250	9,300
7/8	Win 209	Titewad	17.3	Fed 12SO	1,250	9,300
7/8	Win 209	Titewad	17.1	Rem TGT12	1,250	9,300
7/8	Fed 209A	Clays	17.2	Rem TGT12	1,250	9,300
7/8	Fed 209A	Clays	17.4	Fed 12SO	1,250	9,400
7/8	CCI 209SC	Clays	17.4	Win AA12L	1,250	9,500
7/8	Win 209	American Select	20.5	CB4100-12B	1,300	6,885
7/8	Win 209	American Select	20.5	Purple PC	1,300	7,200
7/8	Win 209	American Select	21.0	CB1100-12	1,300	7,200
7/8	Rem 209P	International	21.5	Rem TGT12	1,300	7,300
7/8	Ched 209	International	21.2	Win AA12L	1,300	7,500
7/8	Win 209	American Select	20.5	Rem TGT12	1,300	7,600
7/8	CCI 209SC	Clays	18.7	Rem TGT12	1,300	7,800

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	International	20.2	Rem TGT12	1,300	7,800
7/8	Win 209	Green Dot	21.5	Purple PC	1,300	7,900
7/8	Win 209	Red Dot	18.5	CB4100-12B	1,300	7,920
7/8	Win 209	American Select	19.5	Win AA12L	1,300	8,000
7/8	CCI 209M	International	20.0	Win AA12L	1,300	8,000
7/8	CCI 209SC	International	19.8	Rem TGT12	1,300	8,200
7/8	Win 209	American Select	21.0	Fed 12SO	1,300	8,300
7/8	Win 209	Green Dot	20.0	Win AA12L	1,300	8,300
7/8	Rem 209P	International	20.8	Win AA12L	1,300	8,300
7/8	Win 209	American Select	20.5	Win AA12SL	1,300	8,400
7/8	Win 209	Green Dot	21.0	Rem TGT12	1,300	8,400
7/8	Win 209	Clays	19.7	Win AA12SL	1,300	8,400
7/8	Win 209	International	20.9	Fed 12SO	1,300	8,500
7/8	Rem 209P	Clays	19.1	Win AA12L	1,300	8,600
7/8	Fed 209A	International	21.0	Win AA12SL	1,300	8,600
7/8	Win 209	International	21.0	Win AA12SL	1,300	8,600
7/8	CCI 209SC	International	20.2	Win AA12L	1,300	8,700
7/8	Win 209	Green Dot	20.5	Win AA12SL	1,300	8,800
7/8	Win 209	Green Dot	21.0	Fed 12SO	1,300	8,900
7/8	CCI 209SC	Titewad	18.8	Rem TGT12	1,300	8,900
7/8	Fio 616	Titewad	19.2	Rem TGT12	1,300	8,900
7/8	CCI 209M	Clays	18.5	Rem TGT12	1,300	8,900
7/8	CCI 209M	International	20.0	Rem TGT12	1,300	8,900
7/8	Win 209	Red Dot	19.5	Purple PC	1,300	9,000
7/8	Win 209	Clays	18.4	Rem TGT12	1,300	9,000
7/8	Fed 209A	International	19.7	Rem TGT12	1,300	9,000
7/8	Fed 209A	Titewad	18.8	Win AA12L	1,300	9,100
7/8	Rem 209P	Titewad	19.0	Win AA12L	1,300	9,100
7/8	CCI 209M	International	20.0	Fed 12SO	1,300	9,100
7/8	Rem 209P	Clays	19.0	Fed 12SO	1,300	9,200
7/8	Win 209	Red Dot	18.5	Win AA12L	1,300	9,300
7/8	Win 209	Red Dot	19.0	Rem TGT12	1,300	9,300
7/8	Fed 209A	Clays	19.1	Win AA12L	1,300	9,300
7/8	Win 209	Red Dot	19.0	Fed 12SO	1,300	9,400
7/8	Rem 209P	Titewad	18.2	Rem TGT12	1,300	9,400
7/8	Win 209	Clays	19.2	Win AA12L	1,300	9,400
7/8	Win 209	Titewad	19.1	Win AA12L	1,300	9,500
7/8	Fed 209A	Clays	19.0	Win AA12SL	1,300	9,700
7/8	Win 209	Titewad	18.1	Rem TGT12	1,300	9,900
7/8	Fed 209A	Clays	18.5	Rem TGT12	1,300	9,900
7/8	CCI 209SC	Titewad	18.2	Win AA12L	1,300	10,100
7/8	Rem 209P	Titewad	18.6	Fed 12SO	1,300	10,100
7/8	Win 209	Red Dot	19.0	Win AA12SL	1,300	10,300
7/8	Win 209	Titewad	18.5	Fed 12SO	1,300	10,400
7/8	CCI 209SC	Clays	18.3	Win AA12L	1,300	10,500
7/8	CCI 209M	Clays	18.0	Win AA12L	1,300	10,600
7/8	Win 209	Clays	20.0	Fed 12SO	1,300	10,700
7/8	Fed 209A	Clays	18.3	Fed 12SO	1,300	11,300

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	WST	22.0	Win AA12	1,325	7,900
7/8	Rem 209P	International	22.5	Rem TGT12	1,350	8,300
7/8	Ched 209	International	22.0	Win AA12L	1,350	8,400
7/8	Win 209	International	21.2	Rem TGT12	1,350	8,700
7/8	CCI 209M	International	20.8	Rem TGT12	1,350	8,900
7/8	Rem 209P	International	22.2	Win AA12L	1,350	8,900
7/8	Win 209	International	21.5	Win AA12SL	1,350	9,100
7/8	CCI 209SC	International	20.8	Rem TGT12	1,350	9,400
7/8	CCI 209M	International	21.0	Win AA12L	1,350	9,500
7/8	CCI 209SC	International	21.2	Win AA12L	1,350	9,500
7/8	Fed 209A	International	22.0	Win AA12SL	1,350	9,500
7/8	Win 209	International	21.9	Fed 12SO	1,350	9,500
7/8	CCI 209SC	Titewad	19.8	Rem TGT12	1,350	9,600
7/8	Fio 616	Titewad	20.1	Rem TGT12	1,350	9,800
7/8	Rem 209P	Titewad	19.9	Win AA12L	1,350	10,000
7/8	Win 209	Clays	20.5	Win AA12L	1,350	10,000
7/8	Fed 209A	International	20.6	Rem TGT12	1,350	10,000
7/8	CCI 209M	International	21.0	Fed 12SO	1,350	10,200
7/8	Rem 209P	Titewad	19.5	Rem TGT12	1,350	10,300
7/8	Win 209	Titewad	20.2	Win AA12L	1,350	10,300
7/8	Fed 209A	Titewad	19.8	Win AA12L	1,350	10,700
7/8	Rem 209P	Clays	20.5	Win AA12L	1,350	10,700
7/8	Win 209	Titewad	19.5	Rem TGT12	1,350	10,800
7/8	Fed 209A	Clays	20.5	Win AA12L	1,350	10,800
7/8	CCI 209SC	Titewad	19.8	Win AA12L	1,350	11,300
7/8	Rem 209P	Titewad	19.4	Fed 12SO	1,350	11,300
7/8	Win 209	Titewad	19.5	Fed 12SO	1,350	11,300
7/8	Win 209	Clays	19.4	Rem TGT12	1,350	11,300
7/8	Fed 209A	Clays	19.5	Rem TGT12	1,350	11,400
7/8	CCI 209	WST	23.5	Win AA12	1,355	7,200
7/8	Fed 209A	WST	23.5	Win AA12	1,355	7,400
7/8	Ched 209	International	22.8	Win AA12L	1,400	9,300
7/8	Rem 209P	International	23.0	Rem TGT12	1,400	9,300
7/8	Win 209	International	22.5	Rem TGT12	1,400	9,300
7/8	Win 209	American Select	22.0	Win AA12L	1,400	10,200
7/8	CCI 209SC	Titewad	21.0	Rem TGT12	1,400	10,200
7/8	Rem 209P	International	22.7	Win AA12L	1,400	10,200
7/8	Win 209	International	22.5	Win AA12SL	1,400	10,200
7/8	CCI 209SC	International	21.5	Rem TGT12	1,400	10,300
7/8	CCI 209M	International	22.0	Rem TGT12	1,400	10,400
7/8	Fio 616	Titewad	21.3	Rem TGT12	1,400	10,500
7/8	CCI 209M	International	22.4	Win AA12L	1,400	10,500
7/8	Win 209	Titewad	21.4	Win AA12L	1,400	10,800
7/8	CCI 209SC	International	22.2	Win AA12L	1,400	10,800
7/8	Fed 209A	International	22.0	Rem TGT12	1,400	10,800
7/8	CCI 209M	International	22.0	Fed 12SO	1,400	11,000
7/8	Win 209	WST	23.5	Win AA12	1,400	8,200

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Rem 209P	PB	19.0	Rem Fig 8	1,085	4,500
1	Win 209	700-X	14.5	CB1100-12	1,090	6,500
1	Fed 209A	700-X	14.5	Fed 12S3	1,090	7,900
1	Rem 209P	SR7625	22.0	Fed 12S3	1,095	4,500
1	Win 209	SR7625	22.0	CB1118-12	1,095	4,500
1	Win 209	SR7625	22.0	Rem RXP12	1,095	4,600
1	Win 209	PB	18.0	Rem TGT12	1,095	4,800
1	Win 209	SR7625	21.5	Win AA12	1,095	4,900
1	Rem 209P	PB	19.0	Fed 12S3	1,095	5,100
1	Fed 209A	PB	18.5	CB1100-12	1,095	5,200
1	Fed 209A	PB	18.5	Rem Fig 8	1,095	5,300
1	Fed 209A	SR7625	20.0	Win AA12	1,095	6,000
1	Fed 209A	PB	18.0	Fed 12S3	1,095	6,100
1	Rem 209P	700-X	15.0	Win AA12SL	1,095	6,400
1	Win 209	700-X	14.5	Rem TGT12	1,095	6,700
1	Rem 209P	SR7625	22.5	Rem RXP12	1,100	4,200
1	Rem 209P	PB	19.0	CB1100-12	1,100	4,600
1	Fed 209A	SR7625	21.0	CB1118-12	1,100	4,600
1	Win 209	PB	19.0	Rem Fig 8	1,100	5,400
1	Fed 209A	700-X	15.0	CB1100-12	1,100	6,300
1	Win 209	700-X	14.5	Fed 12S3	1,100	8,200
1	Rem 209P	SR7625	21.5	Win AA12	1,105	5,000
1	Win 209	SR7625	22.0	Fed 12S3	1,105	5,300
1	Rem 209P	700-X	15.5	Rem TGT12	1,105	5,800
1	Win 209	PB	18.5	Win AA12	1,105	5,900
1	Win 209	PB	19.0	Fed 12S3	1,105	5,900
1	Rem 209P	700-X	15.0	Fed 12S3	1,105	7,100
1	Win 209	700-X	14.5	Win AA12SL	1,105	7,500
1	Rem 209P	SR7625	22.5	CB1118-12	1,110	4,400
1	Rem 209P	700-X	16.0	CB1100-12	1,110	5,000
1	Fed 209A	SR7625	21.5	Rem RXP12	1,110	5,000
1	Win 209	PB	19.0	CB1100-12	1,110	5,100
1	Fed 209A	SR7625	20.5	Fed 12S3	1,110	5,400
1	Rem 209P	PB	19.0	Win AA12	1,110	5,700
1	Fed 209A	PB	18.5	Win AA12	1,110	6,200
1	Fed 209A	700-X	15.0	Rem TGT12	1,110	6,900
1	Fed 209A	700-X	15.0	Win AA12SL	1,110	7,300
1	CCI 209SC	Clays	16.6	Purple PC	1,125	6,000
1	CCI 209SC	Clays	15.2	Rem TGT12	1,125	6,400
1	Rem 209P	Titewad	15.9	Purple PC	1,125	6,500
1	CCI 209	Clays	16.3	Windjammer	1,125	6,500
1	Rem 209P	Clays	16.2	Win AA12SL	1,125	6,500
1	CCI 209	Clays	16.6	Rem TGT12	1,125	6,700
1	CCI 209SC	Clays	15.7	Windjammer	1,125	6,800
1	Rem 209P	Titewad	15.9	Rem TGT12	1,125	6,900
1	Win 209	Titewad	15.9	Purple PC	1,125	6,900
1	Win 209	Clays	15.7	Purple PC	1,125	7,000
1	Fed 209A	Titewad	16.4	Win AA12SL	1,125	7,300

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209SC	Titewad	15.5	Purple PC	1,125	7,400
1	CCI 209	Clays	16.0	Purple PC	1,125	7,400
1	Fed 209A	Clays	15.5	Purple PC	1,125	7,400
1	Win 209	Clays	16.0	Win AA12SL	1,125	7,400
1	CCI 209SC	Clays	15.8	Win AA12SL	1,125	7,500
1	Rem 209P	Clays	16.1	Rem TGT12	1,125	7,500
1	Fed 209A	Titewad	15.7	Rem TGT12	1,125	7,600
1	Win 209	Clays	15.8	Rem TGT12	1,125	7,700
1	Fed 209A	Clays	15.2	Rem TGT12	1,125	7,800
1	CCI 209	Clays	15.7	Win AA12SL	1,125	7,900
1	Fed 209A	Clays	15.1	Windjammer	1,125	7,900
1	CCI 209SC	Titewad	15.7	Win AA12SL	1,125	8,000
1	Win 209	Titewad	15.2	Rem TGT12	1,125	8,200
1	Rem 209P	Clays	16.0	Fed 12SO	1,125	8,200
1	Fed 209A	Clays	15.4	Win AA12SL	1,125	8,500
1	CCI 209SC	Titewad	15.3	Rem TGT12	1,125	8,700
1	Rem 209P	Titewad	15.7	Fed 12SO	1,125	8,700
1	Win 209	Titewad	15.6	Fed 12SO	1,125	9,000
1	CCI 209	Clays	15.8	Fed 12SO	1,125	9,000
1	Win 209	SR7625	23.5	Rem RXP12	1,140	5,000
1	Win 209	PB	20.5	CB1100-12	1,140	5,600
1	Win 209	PB	19.5	Rem TGT12	1,140	5,600
1	Win 209	PB	20.0	Rem Fig 8	1,140	5,800
1	Rem 209P	700-X	16.5	Rem TGT12	1,140	6,200
1	Win 209	700-X	15.5	CB1100-12	1,140	7,400
1	Win 209	700-X	15.5	Rem TGT12	1,140	7,400
1	Fed 209A	700-X	15.5	Fed 12S3	1,140	8,700
1	Win 209	700-X	15.5	Fed 12S3	1,140	8,800
1	Rem 209P	SR7625	23.5	CB1118-12	1,145	4,700
1	Rem 209P	SR7625	23.5	Rem RXP12	1,145	4,700
1	Fed 209A	SR7625	22.0	CB1118-12	1,145	5,200
1	Fed 209A	PB	20.0	CB1100-12	1,145	5,800
1	Fed 209A	SR7625	21.5	Fed 12S3	1,145	5,900
1	Rem 209P	PB	20.0	Win AA12	1,145	6,200
1	Fed 209A	SR7625	21.5	Win AA12	1,145	6,300
1	Fed 209A	700-X	16.0	CB1100-12	1,145	7,000
1	Win 209	700-X	15.5	Win AA12SL	1,145	8,200
1	Rem 209P	PB	20.5	CB1100-12	1,150	5,100
1	Win 209	SR7625	23.5	CB1118-12	1,150	5,100
1	Rem 209P	PB	21.0	Rem Fig 8	1,150	5,300
1	Fed 209A	SR7625	22.5	Rem RXP12	1,150	5,400
1	Win 209	SR7625	23.0	Win AA12	1,150	5,500
1	Rem 209P	700-X	17.0	CB1100-12	1,150	5,600
1	Rem 209P	SR7625	22.5	Win AA12	1,150	5,700
1	Rem 209P	PB	20.5	Fed 12S3	1,150	6,000
1	Fed 209A	PB	20.0	Rem Fig 8	1,150	6,100
1	Win 209	PB	20.0	Win AA12	1,150	6,500
1	Win 209	American Select	18.0	Win AA12L	1,150	6,650

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	American Select	18.0	CB1100-12	1,150	6,710
1	Fed 209A	PB	19.5	Win AA12	1,150	6,900
1	Win 209	Green Dot	18.5	CB1100-12	1,150	7,085
1	Win 209	Green Dot	18.5	Win AA12L	1,150	7,575
1	Win 209	American Select	17.5	Win AA12SL	1,150	7,635
1	Win 209	Red Dot	17.0	CB1100-12	1,150	7,915
1	Win 209	Red Dot	16.5	Win AA12SL	1,150	7,920
1	Win 209	Red Dot	16.5	Win AA12L	1,150	7,955
1	Win 209	Green Dot	18.0	Win AA12SL	1,150	8,000
1	Win 209	SR7625	23.0	Fed 12S3	1,155	5,900
1	Rem 209P	700-X	16.5	Win AA12SL	1,155	7,000
1	Fed 209A	PB	19.5	Fed 12S3	1,155	7,200
1	Fed 209A	700-X	16.0	Rem TGT12	1,155	7,500
1	Fed 209A	700X	16.0	Win AA12SL	1,155	8,000
1	Rem 209P	SR7625	23.5	Fed 12S3	1,160	5,300
1	Win 209	PB	20.5	Fed 12S3	1,160	6,800
1	Rem 209P	700-X	16.5	Fed 12S3	1,160	7,900
1	Rem 209P	International	20.8	Rem TGT12	1,180	5,900
1	CCI 209	International	19.2	Win AA12SL	1,180	6,700
1	Win 209	International	18.9	Win AA12SL	1,180	6,900
1	Fed 209A	International	19.2	Purple PC	1,180	7,000
1	CCI 209SC	Clays	18.0	Purple PC	1,180	7,100
1	Rem 209P	Titewad	17.3	Purple PC	1,180	7,300
1	CCI 209	International	18.8	Purple PC	1,180	7,300
1	Win 209	Titewad	17.1	Purple PC	1,180	7,400
1	CCI 209SC	Clays	16.7	Windjammer	1,180	7,400
1	CCI 209	International	18.0	Rem TGT12	1,180	7,400
1	CCI 209SC	International	19.0	Win AA12SL	1,180	7,400
1	Win 209	Titegroup	16.5	Win AA12SL	1,180	7,500
1	CCI 209SC	Clays	16.6	Rem TGT12	1,180	7,500
1	Win 209	Titegroup	16.5	Win AA12SL	1,180	7,500
1	CCI 209	Clays	17.5	Windjammer	1,180	7,600
1	Rem 209P	Titegroup	16.0	Rem TGT12	1,180	7,700
1	CCI 209SC	Titewad	17.0	Purple PC	1,180	7,700
1	Fed 209A	Titewad	17.4	Win AA12SL	1,180	7,700
1	CCI 209	Clays	17.7	Rem TGT12	1,180	7,700
1	Rem 209P	Titegroup	16.0	Rem TGT12	1,180	7,700
1	Rem 209P	International	19.8	Purple PC	1,180	7,700
1	Rem 209P	International	19.0	Win AA12SL	1,180	7,700
1	Win 209	International	18.6	Purple PC	1,180	7,700
1	Win 209	International	18.4	Rem TGT12	1,180	7,700
1	Rem 209P	Titegroup	16.2	Win AA12SL	1,180	7,800
1	Rem 209P	Titewad	16.8	Rem TGT12	1,180	7,800
1	Rem 209P	Titegroup	16.2	Win AA12SL	1,180	7,800
1	Win 209	Titegroup	15.7	Rem TGT12	1,180	7,900
1	Rem 209P	Titewad	17.3	Windjammer	1,180	7,900
1	Win 209	Titegroup	15.7	Rem TGT12	1,180	7,900
1	Rem 209P	Clays	17.4	Win AA12SL	1,180	8,000

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209SC	Titewad	16.7	Win AA12SL	1,180	8,200
1	CCI 209	Clays	17.2	Purple PC	1,180	8,200
1	CCI 209SC	International	18.5	Purple PC	1,180	8,200
1	Fio 616	Titewad	16.6	Windjammer	1,180	8,300
1	CCI 209SC	Clays	17.0	Win AA12SL	1,180	8,300
1	Win 209	Clays	17.2	Win AA12SL	1,180	8,300
1	Rem 209P	Clays	17.3	Rem TGT12	1,180	8,400
1	Win 209	Clays	17.2	Purple PC	1,180	8,500
1	Win 209	Clays	16.8	Rem TGT12	1,180	8,500
1	CCI 209	Clays	17.0	Win AA12SL	1,180	8,700
1	CCI 209SC	International	17.8	Rem TGT12	1,180	8,700
1	Fed 209A	International	18.0	Win AA12SL	1,180	8,700
1	Win 209	International	18.4	Fed 12SO	1,180	8,700
1	Fed 209A	Titewad	17.3	Rem TGT12	1,180	8,800
1	Fed 209A	Clays	16.9	Win AA12SL	1,180	9,000
1	Fed 209A	International	17.8	Rem TGT12	1,180	9,000
1	Rem 209P	International	18.8	Fed 12SO	1,180	9,100
1	CCI 209SC	Titewad	16.5	Rem TGT12	1,180	9,200
1	Win 209	Titewad	16.4	Rem TGT12	1,180	9,200
1	Fed 209A	Clays	17.3	Purple PC	1,180	9,200
1	Fed 209A	Clays	16.8	Windjammer	1,180	9,200
1	Rem 209P	Clays	17.4	Fed 12SO	1,180	9,400
1	Fed 209A	Clays	16.7	Rem TGT12	1,180	9,500
1	Rem 209P	Titewad	16.5	Fed 12SO	1,180	10,000
1	Win 209	Titewad	16.8	Fed 12SO	1,180	10,300
1	CCI 209	Clays	17.0	Fed 12SO	1,180	10,500
1	Win 209	WST	19.5	Win AA12SL	1,180	7,400
1	Fed 209A	WST	19.0	Win AA12SL	1,180	7,900
1	Win 209	WST	19.0	Fed 12SO	1,180	8,000
1	CCI 209	WST	19.0	Fed 12SO	1,180	8,300
1	Rem 209P	SR7625	24.5	Rem RXP12	1,190	5,200
1	Rem 209P	SR7625	24.5	CB1118-12	1,190	5,300
1	Rem 209P	PB	22.0	Rem Fig 8	1,190	5,700
1	Win 209	SR7625	24.0	Win AA12	1,190	5,800
1	Fed 209A	SR7625	23.5	Rem RXP12	1,190	5,900
1	Rem 209P	700-X	18.0	CB1100-12	1,190	6,100
1	Win 209	PB	22.0	CB1100-12	1,190	6,100
1	Fed 209A	PB	21.0	Rem Fig 8	1,190	6,600
1	Win 209	700-X	16.5	Rem TGT12	1,190	8,200
1	Rem 209P	SR7625	23.5	Win AA12	1,195	6,200
1	Win 209	PB	21.5	Rem Fig 8	1,195	6,500
1	Fed 209A	PB	20.5	Fed 12S3	1,195	7,900
1	Fed 209A	700-X	17.0	Rem TGT12	1,195	8,200
1	Fed 209A	700-X	17.0	Win AA12SL	1,195	8,700
1	Win 209	700-X	16.5	Win AA12SL	1,195	9,000
1	Rem 209P	PB	22.0	CB1100-12	1,200	5,700
1	Win 209	SR7625	25.0	Rem RXP12	1,200	5,700
1	Fed 209A	PB	21.5	CB1100-12	1,200	6,400

Hull #28 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 95
Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Unique	22.0	Win AA12SL	1,200	6,500
1	Fed 209A	SR7625	23.0	Fed 12S3	1,200	6,600
1	Win 209	PB	21.5	Rem TGT12	1,200	6,700
1	Win 209	American Select	18.5	CB1100-12	1,200	6,900
1	Win 209	Green Dot	19.5	Purple PC	1,200	7,000
1	Win 209	PB	21.5	Win AA12	1,200	7,100
1	Win 209	PB	21.5	Fed 12S3	1,200	7,400
1	Win 209	Green Dot	19.8	CB1100-12	1,200	7,700
1	Win 209	Green Dot	19.5	Rem TGT12	1,200	7,900
1	Win 209	American Select	19.0	Rem TGT12	1,200	8,000
1	Win 209	American Select	19.0	Green Duster	1,200	8,100
1	Win 209	Green Dot	19.5	Win WT12	1,200	8,140
1	Win 209	American Select	19.0	Win AA12SL	1,200	8,200
1	Win 209	Green Dot	19.5	Green Duster	1,200	8,300
1	Win 209	American Select	19.0	Win WT12	1,200	8,400
1	Win 209	Green Dot	19.5	Fed 12SO	1,200	8,400
1	Win 209	Green Dot	19.5	Win AA12SL	1,200	8,500
1	Win 209	Red Dot	18.0	CB1100-12	1,200	8,600
1	Rem 209P	700-X	17.5	Fed 12S3	1,200	8,600
1	Win 209	American Select	19.0	Fed 12SO	1,200	8,700
1	Win 209	Red Dot	18.0	Purple PC	1,200	8,900
1	Win 209	Red Dot	18.0	Rem TGT12	1,200	9,200
1	Win 209	e3	16.5	Win AA12SL	1,200	9,240
1	Win 209	Red Dot	18.0	Fed 12SO	1,200	9,600
1	Win 209	Red Dot	18.0	Win AA12SL	1,200	10,200
1	Win 209	Red Dot	17.5	Win WT12	1,200	10,600
1	Win 209	WST	19.5	Win AA12	1,200	8,500
1	Win 209	SR7625	24.0	Fed 12S3	1,205	6,500
1	Rem 209P	PB	22.0	Fed 12S3	1,205	6,900
1	Fed 209A	SR7625	23.5	Win AA12	1,205	6,900
1	Rem 209P	700-X	18.0	Rem TGT12	1,205	7,100
1	Rem 209P	PB	21.5	Win AA12	1,205	7,100
1	Fed 209A	700-X	17.5	CB1100-12	1,205	8,000
1	Win 209	700-X	17.0	CB1100-12	1,205	8,500
1	Win 209	700-X	17.0	Fed 12S3	1,205	9,700
1	Win 209	SR7625	25.0	CB1118-12	1,210	5,800
1	Rem 209P	SR7625	24.5	Fed 12S3	1,210	6,000
1	Fed 209A	SR7625	23.5	CB1118-12	1,210	6,200
1	Rem 209P	700-X	18.0	Win AA12SL	1,210	7,600
1	Fed 209A	PB	21.0	Win AA12	1,210	7,900
1	Fed 209A	700-X	17.0	Fed 12S3	1,210	9,900
1	Rem 209P	International	21.5	Rem TGT12	1,235	7,100
1	CCI 209	International	20.6	Win AA12SL	1,235	7,500
1	Fed 209A	International	20.6	Purple PC	1,235	7,900
1	Win 209	International	20.0	Purple PC	1,235	8,100
1	Win 209	International	20.4	Win AA12SL	1,235	8,300
1	CCI 209SC	Clays	19.3	Purple PC	1,235	8,400
1	CCI 209	Clays	18.7	Rem TGT12	1,235	8,500

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209	International	20.0	Purple PC	1,235	8,500
1	CCI 209SC	International	20.0	Win AA12SL	1,235	8,600
1	Win 209	International	19.6	Rem TGT12	1,235	8,600
1	CCI 209	International	19.2	Rem TGT12	1,235	8,700
1	Win 209	Titegroup	17.7	Win AA12SL	1,235	8,800
1	Rem 209P	Titewad	18.4	Rem TGT12	1,235	8,900
1	Rem 209P	International	20.7	Purple PC	1,235	8,900
1	Rem 209P	Titegroup	17.3	Rem TGT12	1,235	9,000
1	Win 209	Titewad	18.5	Purple PC	1,235	9,000
1	CCI 209	Clays	18.8	Windjammer	1,235	9,000
1	Rem 209P	Titegroup	17.3	Rem TGT12	1,235	9,000
1	Rem 209P	Titegroup	17.4	Win AA12SL	1,235	9,100
1	Win 209	Titegroup	17.1	Rem TGT12	1,235	9,100
1	CCI 209SC	Titewad	18.5	Purple PC	1,235	9,100
1	Rem 209P	Titegroup	17.4	Win AA12SL	1,235	9,100
1	Win 209	Titegroup	17.1	Rem TGT12	1,235	9,100
1	CCI 209SC	International	19.8	Purple PC	1,235	9,100
1	Rem 209P	Titewad	18.8	Purple PC	1,235	9,200
1	CCI 209SC	Clays	18.0	Windjammer	1,235	9,200
1	Rem 209P	Clays	18.6	Win AA12SL	1,235	9,200
1	Win 209	Clays	18.5	Win AA12SL	1,235	9,200
1	Rem 209P	International	20.0	Win AA12SL	1,235	9,200
1	Rem 209P	Titewad	18.3	Windjammer	1,235	9,400
1	Fed 209A	Titewad	18.4	Win AA12SL	1,235	9,600
1	Fio 616	Titewad	18.2	Windjammer	1,235	9,600
1	CCI 209SC	Clays	17.5	Rem TGT12	1,235	9,700
1	CCI 209SC	International	19.3	Rem TGT12	1,235	9,700
1	Fed 209A	International	18.8	Rem TGT12	1,235	9,700
1	CCI 209SC	Clays	18.5	Win AA12SL	1,235	9,800
1	CCI 209	Clays	18.5	Purple PC	1,235	9,900
1	Rem 209P	Clays	18.5	Rem TGT12	1,235	9,900
1	Win 209	Clays	18.5	Purple PC	1,235	9,900
1	Rem 209P	International	20.0	Fed 12SO	1,235	9,900
1	Fed 209A	Titewad	18.1	Rem TGT12	1,235	10,000
1	Win 209	Titewad	17.7	Rem TGT12	1,235	10,200
1	Win 209	Clays	18.2	Rem TGT12	1,235	10,300
1	CCI 209SC	Titewad	17.7	Win AA12SL	1,235	10,400
1	Fed 209A	Clays	18.5	Purple PC	1,235	10,400
1	Fed 209A	International	19.0	Win AA12SL	1,235	10,400
1	Win 209	International	19.6	Fed 12SO	1,235	10,500
1	CCI 209SC	Titewad	17.6	Rem TGT12	1,235	10,900
1	CCI 209	Clays	18.4	Win AA12SL	1,235	10,900
1	Fed 209A	Clays	18.4	Win AA12SL	1,235	10,900
1	Fed 209A	Clays	18.2	Rem TGT12	1,235	11,000
1	Rem 209P	Titewad	18.0	Fed 12SO	1,235	11,200
1	Fed 209A	Clays	18.2	Windjammer	1,235	11,200
1	Rem 209P	Clays	18.7	Fed 12SO	1,235	11,400
1	CCI 209	WST	21.5	Win AA12SL	1,235	7,900

Hull #28 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 95
Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	WST	21.0	Win AA12SL	1,235	8,100
1	Fed 209A	WST	20.0	Win AA12SL	1,235	8,900
1	Win 209	WST	20.5	Fed 12S0	1,235	9,500
1	CCI 209	WST	20.5	Fed 12S0	1,235	9,500
1	Rem 209P	SR7625	25.5	Rem RXP12	1,245	6,000
1	Win 209	SR7625	26.0	Rem RXP12	1,245	6,200
1	Rem 209P	700-X	19.0	Win AA12SL	1,245	8,000
1	Win 209	700-X	18.0	CB1100-12	1,245	9,300
1	Win 209	SR7625	26.0	CB1118-12	1,250	6,200
1	Fed 209A	SR7625	24.5	CB1118-12	1,250	6,700
1	Fed 209A	SR7625	25.0	Rem RXP12	1,250	6,700
1	Rem 209P	700-X	19.5	CB1100-12	1,250	7,000
1	Win 209	SR7625	25.0	Fed 12S3	1,250	7,100
1	Win 209	Unique	23.0	Win AA12SL	1,250	7,300
1	Fed 209A	PB	22.5	Rem Fig 8	1,250	7,400
1	Rem 209P	700-X	19.0	Rem TGT12	1,250	7,700
1	Rem 209P	PB	22.5	Win AA12	1,250	7,700
1	Win 209	PB	23.0	Fed 12S3	1,250	8,100
1	Fed 209A	700-X	18.5	CB1100-12	1,250	8,700
1	Rem 209P	700-X	18.5	Fed 12S3	1,250	9,300
1	Win 209	700-X	18.0	Rem TGT12	1,250	9,400
1	Win 209	700-X	18.0	Win AA12SL	1,250	10,100
1	Win 209	700-X	18.0	Fed 12S3	1,250	10,500
1	Fed 209A	700-X	18.0	Fed 12S3	1,250	10,700
1	Win 209	PB	23.5	CB1100-12	1,255	6,600
1	Win 209	SR7625	25.5	Win AA12	1,255	6,600
1	Rem 209P	PB	23.5	Rem Fig 8	1,255	6,700
1	Rem 209P	SR7625	25.0	Win AA12	1,255	7,100
1	Win 209	PB	23.0	Rem Fig 8	1,255	7,200
1	Fed 209A	SR7625	24.5	Fed 12S3	1,255	7,300
1	Win 209	Green Dot	21.0	CB1100-12	1,255	8,200
1	Win 209	Green Dot	21.5	Purple PC	1,255	8,700
1	Win 209	American Select	20.5	CB1100-12	1,255	8,800
1	Win 209	Green Dot	21.0	Rem TGT12	1,255	8,800
1	Win 209	American Select	20.0	Green Duster	1,255	8,900
1	Fed 209A	PB	22.0	Fed 12S3	1,255	8,900
1	Win 209	American Select	20.0	Rem TGT12	1,255	9,100
1	Win 209	Green Dot	20.5	Green Duster	1,255	9,200
1	Win 209	Green Dot	21.0	Win AA12SL	1,255	9,200
1	Win 209	Red Dot	19.0	CB1100-12	1,255	9,300
1	Win 209	American Select	20.0	Win AA12SL	1,255	9,500
1	Win 209	Red Dot	19.0	Purple PC	1,255	9,700
1	Fed 209A	700-X	18.5	Win AA12SL	1,255	9,700
1	Win 209	Red Dot	19.5	Rem TGT12	1,255	9,800
1	Win 209	American Select	20.0	Fed 12S0	1,255	10,000
1	Win 209	e3	18.0	Win AA12SL	1,255	10,045
1	Win 209	Red Dot	19.0	Win AA12SL	1,255	10,500
1	CCI 209	WST	21.0	Win AA12	1,255	8,400

12

12 Gauge 2 ¾"
Lead Shot Load Data

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) **Hull #28**

12 Gauge 2 ¾"

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	WST	21.5	Win AA12	1,255	8,800
1	Win 209	WST	21.0	Win AA12	1,255	9,600
1	Rem 209P	PB	23.5	CB1100-12	1,260	6,500
1	Fed 209A	PB	23.0	CB1100-12	1,260	7,200
1	Fed 209A	SR7625	25.0	Win AA12	1,260	7,400
1	Win 209	PB	23.0	Rem TGT12	1,260	7,500
1	Rem 209P	PB	23.5	Fed 12S3	1,260	7,600
1	Win 209	PB	23.0	Win AA12	1,260	7,900
1	Fed 209A	PB	22.5	Win AA12	1,260	8,600
1	Fed 209A	700-X	18.5	Rem TGT12	1,260	9,400
1	Rem 209P	SR7625	26.0	CB1118-12	1,265	6,300
1	Rem 209P	SR7625	25.5	Fed 12S3	1,265	6,900
1	Rem 209P	International	22.3	Rem TGT12	1,290	7,800
1	Win 209	Unique	24.0	Win AA12SL	1,290	8,100
1	Win 209	Green Dot	20.0	Win AA12	1,290	8,700
1	Win 209	Green Dot	21.0	Fed 12C1	1,290	8,800
1	Win 209	Green Dot	21.0	Rem RXP12	1,290	8,800
1	CCI 209	International	22.3	Win AA12SL	1,290	8,800
1	Win 209	Red Dot	19.5	CB1100-12	1,290	8,900
1	Win 209	International	21.3	Win AA12SL	1,290	8,900
1	Win 209	Green Dot	22.0	Purple PC	1,290	9,000
1	Win 209	Green Dot	22.0	CB1100-12	1,290	9,100
1	CCI 209	International	21.0	Purple PC	1,290	9,100
1	Win 209	American Select	21.5	CB1100-12	1,290	9,200
1	Win 209	International	21.2	Purple PC	1,290	9,300
1	Rem 209P	International	21.6	Purple PC	1,290	9,400
1	Win 209	American Select	21.0	Rem TGT12	1,290	9,500
1	Win 209	Green Dot	21.5	Win AA12SL	1,290	9,500
1	Win 209	Green Dot	22.0	Green Duster	1,290	9,500
1	CCI 209	Clays	19.8	Rem TGT12	1,290	9,500
1	Fed 209A	International	21.7	Purple PC	1,290	9,600
1	Win 209	International	20.7	Rem TGT12	1,290	9,600
1	Win 209	American Select	21.5	Green Duster	1,290	9,700
1	Win 209	Green Dot	22.0	Rem TGT12	1,290	9,700
1	Win 209	Green Dot	22.5	Fed 12S3	1,290	9,700
1	Rem 209P	International	21.2	Win AA12SL	1,290	9,700
1	CCI 209M	Green Dot	21.5	Win AA12	1,290	9,900
1	Win 209	Red Dot	20.0	Fed 12S3	1,290	9,900
1	Rem 209P	Titewad	19.5	Windjammer	1,290	9,900
1	CCI 209	International	20.2	Rem TGT12	1,290	10,000
1	CCI 209SC	International	21.0	Win AA12SL	1,290	10,000
1	Win 209	e3	18.5	Win AA12SL	1,290	10,080
1	Win 209	Red Dot	20.0	Rem RXP12	1,290	10,100
1	Win 209	Titegroup	18.9	Win AA12SL	1,290	10,100
1	Win 209	Titegroup	18.9	Win AA12SL	1,290	10,100
1	CCI 209SC	International	21.0	Purple PC	1,290	10,100
1	Win 209	American Select	20.5	Fed 12SO	1,290	10,200
1	Win 209	Red Dot	20.0	Fed 12C1	1,290	10,200

Hull #28 (Continued)

12 Gauge 2 ¾″

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾″ Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Rem 209P	Titegroup	18.6	Rem TGT12	1,290	10,200
1	Win 209	Titegroup	18.5	Rem TGT12	1,290	10,200
1	CCI 209SC	Titewad	20.0	Purple PC	1,290	10,200
1	Win 209	Clays	19.8	Win AA12SL	1,290	10,200
1	Rem 209P	Titegroup	18.6	Rem TGT12	1,290	10,200
1	Win 209	Titegroup	18.5	Rem TGT12	1,290	10,200
1	Win 209	American Select	21.5	Win AA12SL	1,290	10,300
1	CCI 209M	Red Dot	18.5	Win AA12	1,290	10,400
1	Win 209	Red Dot	20.0	Purple PC	1,290	10,400
1	Rem 209P	Titegroup	18.6	Win AA12SL	1,290	10,400
1	Rem 209P	Titewad	20.3	Purple PC	1,290	10,400
1	Win 209	Titewad	19.5	Purple PC	1,290	10,400
1	Win 209	Clays	20.0	Purple PC	1,290	10,400
1	Rem 209P	Titegroup	18.6	Win AA12SL	1,290	10,400
1	CCI 209SC	International	20.3	Rem TGT12	1,290	10,400
1	Win 209	Red Dot	19.0	Win AA12	1,290	10,500
1	Fed 209A	International	20.0	Rem TGT12	1,290	10,500
1	Fed 209A	Titewad	20.1	Win AA12SL	1,290	10,600
1	Rem 209P	Titewad	20.2	Rem TGT12	1,290	10,600
1	Rem 209P	Clays	20.4	Win AA12SL	1,290	10,600
1	Fio 616	Titewad	19.5	Windjammer	1,290	10,700
1	CCI 209	Clays	20.3	Windjammer	1,290	10,700
1	CCI 209SC	Clays	20.8	Purple PC	1,290	10,700
1	CCI 209	Clays	20.0	Purple PC	1,290	10,800
1	CCI 209SC	Clays	19.2	Rem TGT12	1,290	11,000
1	Fed 209A	Clays	19.8	Purple PC	1,290	11,100
1	Win 209	International	20.7	Fed 12SO	1,290	11,100
1	Win 209	Red Dot	19.5	Win AA12SL	1,290	11,200
1	Fed 209A	Titewad	19.4	Rem TGT12	1,290	11,200
1	CCI 209SC	Clays	19.5	Windjammer	1,290	11,200
1	Win 209	Titewad	19.0	Rem TGT12	1,290	11,300
1	Fed 209A	International	20.0	Win AA12SL	1,290	11,300
1	CCI 209	WST	21.5	Fed 12SO	1,290	10,700
1	Win 209	WST	22.0	Fed 12SO	1,290	10,900
1	Win 209	WST	22.0	Win AA12SL	1,290	9,000
1	CCI 209	WST	22.5	Win AA12SL	1,290	9,400
1	Fed 209A	WST	21.0	Win AA12SL	1,290	9,800
1	CCI 209	WST	22.5	Win AA12	1,325	10,200
1	Win 209	WST	22.5	Win AA12	1,325	11,100
1	Rem 209P	International	22.8	Purple PC	1,345	10,100
1	Win 209	International	22.7	Purple PC	1,345	10,800
1	CCI 209	International	22.0	Purple PC	1,345	10,900
1	Win 209	International	22.2	Rem TGT12	1,345	11,000
1	Rem 209P	International	22.5	Win AA12SL	1,345	11,100
1	Rem 209P	Titegroup	20.0	Rem TGT12	1,345	11,200
1	Rem 209P	Titegroup	20.0	Rem TGT12	1,345	11,200
1	CCI 209SC	International	22.0	Purple PC	1,345	11,200
1	CCI 209SC	International	21.3	Rem TGT12	1,345	11,300

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Titegroup	19.9	Rem TGT12	1,345	11,400
1	Win 209	Titegroup	20.1	Win AA12SL	1,345	11,400
1	Win 209	Titegroup	19.9	Rem TGT12	1,345	11,400
1	Win 209	Titegroup	20.1	Win AA12SL	1,345	11,400
1	Rem 209P	Titegroup	20.0	Win AA12SL	1,345	11,500
1	Rem 209P	Titegroup	20.0	Win AA12SL	1,345	11,500
1 1/8	Fed 209A	800-X	20.5	Rem Fig 8	1,090	5,200
1 1/8	CCI 209	800-X	20.5	Fed 12S3	1,090	5,800
1 1/8	Win 209	SR7625	21.0	Win AA12	1,090	6,400
1 1/8	Rem 209P	700-X	16.0	Windjammer	1,090	6,800
1 1/8	Win 209	International	18.3	Red PC	1,090	6,800
1 1/8	Rem 209P	700-X	15.5	CB1118-12	1,090	6,900
1 1/8	Fed 209A	International	17.4	Windjammer	1,090	6,900
1 1/8	Rem 209P	Clays	17.1	Red PC	1,090	7,200
1 1/8	Win 209	American Select	17.0	Red PC	1,090	7,300
1 1/8	Win 209	Green Dot	18.0	Red PC	1,090	7,300
1 1/8	Win 209	Green Dot	18.0	Rem Fig 8	1,090	7,400
1 1/8	Win 209	International	17.6	Win AA12	1,090	7,400
1 1/8	Win 209	American Select	17.0	CB1100-12	1,090	7,600
1 1/8	Win 209	Green Dot	17.5	Rem RXP12	1,090	7,600
1 1/8	Win 209	Clays	16.0	Rem Fig 8	1,090	7,700
1 1/8	Win 209	Clays	16.1	Win AA12	1,090	7,700
1 1/8	Win 209	Green Dot	17.5	CB1100-12	1,090	7,800
1 1/8	Win 209	Green Dot	17.5	Hor Versalite	1,090	7,800
1 1/8	Rem 209P	700-X	15.5	Fed 12S3	1,090	7,800
1 1/8	CCI 209SC	American Select	17.0	Win AA12	1,090	7,900
1 1/8	Win 209	Titegroup	14.9	Win AA12	1,090	7,900
1 1/8	Ched 209	Clays	15.7	Windjammer	1,090	7,900
1 1/8	Win 209	Clays	16.3	Red PC	1,090	7,900
1 1/8	Win 209	Titegroup	14.9	Win AA12	1,090	7,900
1 1/8	Ched 209	International	17.4	Rem Fig 8	1,090	7,900
1 1/8	Win 209	International	17.4	Hor Versalite	1,090	7,900
1 1/8	Win 209	International	17.3	Windjammer	1,090	7,900
1 1/8	Rem 209P	American Select	17.0	Win AA12	1,090	8,000
1 1/8	Win 209	Green Dot	18.0	Win AA12SL	1,090	8,000
1 1/8	Win 209	Red Dot	16.0	CB1100-12	1,090	8,000
1 1/8	Ched 209	International	17.9	Windjammer	1,090	8,000
1 1/8	Win 209	American Select	17.5	Rem Fig 8	1,090	8,100
1 1/8	Win 209	Green Dot	17.5	Win AA12	1,090	8,100
1 1/8	Rem 209P	Red Dot	17.0	Win AA12	1,090	8,100
1 1/8	Rem 209P	Clays	16.5	Windjammer	1,090	8,100
1 1/8	Ched 209	International	16.9	Win AA12	1,090	8,100
1 1/8	Rem 209P	International	17.2	Windjammer	1,090	8,100
1 1/8	Win 209	International	17.3	Rem Fig 8	1,090	8,100
1 1/8	Win 209	International	17.0	Trapper	1,090	8,100
1 1/8	Win 209	Titegroup	14.9	Rem Fig 8	1,090	8,200
1 1/8	CCI 209	Clays	16.0	Windjammer	1,090	8,200
1 1/8	Win 209	Titegroup	14.9	Rem Fig 8	1,090	8,200

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	American Select	17.0	Blue Duster	1,090	8,300
1 1/8	Win 209	Green Dot	17.5	Blue Duster	1,090	8,300
1 1/8	Win 209	Red Dot	16.0	Rem Fig 8	1,090	8,300
1 1/8	Win 209	Titewad	15.3	Windjammer	1,090	8,300
1 1/8	Win 209	Clays	16.4	Hor Versalite	1,090	8,300
1 1/8	CCI 209	International	17.0	Windjammer	1,090	8,300
1 1/8	Win 209	American Select	16.8	Win AA12SL	1,090	8,400
1 1/8	Rem 209P	Titegroup	14.6	Win AA12	1,090	8,400
1 1/8	CCI 209	Clays	16.5	Red PC	1,090	8,400
1 1/8	Rem 209P	Titegroup	14.6	Win AA12	1,090	8,400
1 1/8	Rem 209P	Titegroup	14.7	Rem Fig 8	1,090	8,500
1 1/8	Rem 209P	Titewad	15.7	Rem Fig 8	1,090	8,500
1 1/8	Rem 209P	Titegroup	14.7	Rem Fig 8	1,090	8,500
1 1/8	CCI 209SC	International	16.7	Windjammer	1,090	8,500
1 1/8	CCI 209	Titewad	15.3	Windjammer	1,090	8,600
1 1/8	CCI 209SC	Clays	16.1	Windjammer	1,090	8,600
1 1/8	CCI 209	International	16.7	Hor Versalite	1,090	8,600
1 1/8	CCI 209SC	International	16.7	Rem Fig 8	1,090	8,600
1 1/8	Fio 616	International	16.3	Rem Fig 8	1,090	8,600
1 1/8	Fed 209A	American Select	17.0	Win AA12	1,090	8,700
1 1/8	Ched 209	Titewad	15.9	Windjammer	1,090	8,700
1 1/8	CCI 209	Clays	16.0	Rem Fig 8	1,090	8,700
1 1/8	CCI 209SC	Clays	15.7	Rem Fig 8	1,090	8,800
1 1/8	Ched 209	Clays	16.4	Rem Fig 8	1,090	8,800
1 1/8	Rem 209P	International	16.8	Hawk	1,090	8,800
1 1/8	Fio 616	Red Dot	16.0	Win AA12	1,090	8,900
1 1/8	Win 209	Titewad	15.1	Red PC	1,090	8,900
1 1/8	CCI 209	Clays	16.0	Win AA12	1,090	8,900
1 1/8	Rem 209P	Clays	15.9	Win AA12	1,090	8,900
1 1/8	CCI 209	International	17.3	Red PC	1,090	8,900
1 1/8	CCI 209SC	International	16.7	Red PC	1,090	8,900
1 1/8	Rem 209P	International	16.5	Win AA12	1,090	8,900
1 1/8	Win 209	American Select	17.0	Win AA12	1,090	9,000
1 1/8	Win 209	Green Dot	16.5	Win WT12	1,090	9,000
1 1/8	Win 209	Red Dot	16.5	Hor Versalite	1,090	9,000
1 1/8	Win 209	Red Dot	16.5	Rem RXP12	1,090	9,000
1 1/8	Win 209	Titewad	15.2	Rem Fig 8	1,090	9,000
1 1/8	Rem 209P	Clays	16.3	Rem Fig 8	1,090	9,000
1 1/8	Rem 209P	International	16.8	Hor Versalite	1,090	9,000
1 1/8	Win 209	International	17.0	Hawk	1,090	9,000
1 1/8	Win 209	American Select	17.0	Rem RXP12	1,090	9,100
1 1/8	Win 209	Red Dot	16.0	Red PC	1,090	9,100
1 1/8	Fed 209A	700-X	15.0	Win AA12	1,090	9,100
1 1/8	Rem 209P	Titewad	15.5	Windjammer	1,090	9,100
1 1/8	Fed 209A	Clays	16.0	Windjammer	1,090	9,100
1 1/8	CCI 209SC	International	16.2	Win AA12	1,090	9,100
1 1/8	Fed 209A	International	16.0	Red PC	1,090	9,200
1 1/8	Win 209	Red Dot	16.0	Win AA12SL	1,090	9,300

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Titewad	15.2	CB3118-12AR	1,090	9,300
1 1/8	CCI 209SC	Clays	15.5	Win AA12	1,090	9,300
1 1/8	CCI 209	International	17.0	Rem Fig 8	1,090	9,300
1 1/8	Fed 209A	Titewad	15.4	Windjammer	1,090	9,400
1 1/8	Ched 209	Clays	15.8	Win AA12	1,090	9,400
1 1/8	Fio 616	Clays	15.5	Win AA12	1,090	9,400
1 1/8	CCI 209SC	International	16.5	Trapper	1,090	9,400
1 1/8	Win 209	Red Dot	16.0	Win AA12	1,090	9,500
1 1/8	Ched 209	Titewad	15.7	Rem Fig 8	1,090	9,500
1 1/8	Win 209	Titewad	15.2	Win AA12	1,090	9,500
1 1/8	Fed 209A	International	16.0	Win AA12	1,090	9,500
1 1/8	Fed 209A	Titewad	15.6	Red PC	1,090	9,600
1 1/8	Fio 616	International	16.3	Win AA12	1,090	9,600
1 1/8	Win 209	Green Dot	18.0	Fed 12S3	1,090	9,700
1 1/8	Fed 209A	Titewad	15.4	Win AA12	1,090	9,700
1 1/8	Fed 209A	Clays	15.0	Win AA12	1,090	9,700
1 1/8	Win 209	Clays	16.0	Lage Uniwad	1,090	9,700
1 1/8	CCI 209	International	17.0	Win AA12	1,090	9,700
1 1/8	Fed 209A	International	16.5	Rem Fig 8	1,090	9,700
1 1/8	CCI 209M	Red Dot	17.0	Win AA12	1,090	9,800
1 1/8	Ched 209	Titewad	15.3	Win AA12	1,090	9,900
1 1/8	Fed 209A	Titewad	15.5	Fed 12S3	1,090	9,900
1 1/8	Fed 209A	Titewad	15.6	Rem Fig 8	1,090	10,000
1 1/8	Win 209	Titewad	14.8	Hawk	1,090	10,000
1 1/8	Rem 209P	Titewad	15.5	Win AA12	1,090	10,100
1 1/8	Win 209	Red Dot	15.5	Blue Duster	1,090	10,300
1 1/8	CCI 209	Titewad	15.3	Rem Fig 8	1,090	10,300
1 1/8	CCI 209	Titewad	15.3	Win AA12	1,090	10,300
1 1/8	CCI 209SC	Clays	15.5	Trapper	1,090	10,300
1 1/8	Win 209	Red Dot	17.0	Fed 12S3	1,090	10,400
1 1/8	Fed 209A	Titewad	15.3	Hor Versalite	1,090	10,600
1 1/8	Fed 209A	Clays	15.8	Rem Fig 8	1,090	10,700
1 1/8	CCI 209	800-X	21.0	CB1118-12	1,095	5,000
1 1/8	Rem 209P	SR7625	22.0	Windjammer	1,095	5,100
1 1/8	Rem 209P	SR7625	22.0	Windjammer	1,095	5,100
1 1/8	CCI 209	800-X	21.0	Rem Fig 8	1,095	5,200
1 1/8	Fed 209A	SR7625	22.0	Windjammer	1,095	5,400
1 1/8	Win 209	800-X	20.5	Windjammer	1,095	5,400
1 1/8	Fed 209A	800-X	20.5	CB1118-2	1,095	5,600
1 1/8	Rem 209P	PB	20.0	Windjammer	1,095	5,700
1 1/8	CCI 209	800-X	20.5	Win AA12	1,095	5,800
1 1/8	Win 209	800-X	20.0	CB1118-12	1,095	5,800
1 1/8	Fed 209A	SR7625	21.5	Rem RXP12	1,095	6,100
1 1/8	Fed 209A	800-X	19.5	Fed 12S3	1,095	6,400
1 1/8	Win 209	SR7625	21.0	Fed 12S4	1,095	6,700
1 1/8	Rem 209P	PB	19.5	Fed 12S4	1,095	6,900
1 1/8	Win 209	PB	19.5	Win AA12	1,095	6,900
1 1/8	Fed 209A	700-X	15.0	Windjammer	1,095	8,200

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	700-X	15.5	Win AA12	1,095	8,200
1 1/8	Win 209	700-X	15.5	Rem Fig 8	1,095	8,300
1 1/8	Fed 209A	700-X	15.0	CB1118-12	1,095	8,500
1 1/8	CCI 209	800-X	21.5	Windjammer	1,100	4,800
1 1/8	Rem 209P	PB	20.5	CB1118-12	1,100	5,500
1 1/8	Win 209	SR7625	21.5	CB1118-12	1,100	6,000
1 1/8	Win 209	PB	20.0	Windjammer	1,100	6,200
1 1/8	Win 209	PB	20.0	CB1118-12	1,100	6,300
1 1/8	Fed 209A	PB	19.5	Windjammer	1,100	6,400
1 1/8	Rem 209P	PB	20.0	Rem RXP12	1,100	6,400
1 1/8	Rem 209P	PB	20.0	Win AA12	1,100	6,500
1 1/8	Rem 209P	SR7625	21.5	Fed 12S4	1,100	6,500
1 1/8	Rem 209P	SR7625	21.5	Fed 12S4	1,100	6,500
1 1/8	Win 209	800-X	20.0	Fed 12S3	1,100	6,500
1 1/8	Win 209	800-X	20.0	Win AA12	1,100	6,600
1 1/8	Fed 209A	SR7625	21.0	Win AA12	1,100	6,800
1 1/8	Fed 209A	SR7625	21.0	Fed 12S4	1,100	6,800
1 1/8	Fed 209A	SR7625	21.0	Fed 12S4	1,100	6,800
1 1/8	Fed 209A	PB	19.0	Win AA12	1,100	7,500
1 1/8	Fed 209A	PB	19.0	Fed 12S4	1,100	7,600
1 1/8	Rem 209P	700-X	16.0	Rem Fig 8	1,100	7,900
1 1/8	Fed 209A	700-X	15.5	Rem Fig 8	1,100	8,900
1 1/8	Fed 209A	700-X	15.5	Fed 12S3	1,100	9,000
1 1/8	Win 209	700-X	15.5	Fed 12S3	1,100	9,500
1 1/8	Fed 209A	800-X	21.0	Windjammer	1,105	5,100
1 1/8	Rem 209P	SR7625	22.0	CB1118-12	1,105	5,600
1 1/8	Rem 209P	SR7625	22.0	CB1118-12	1,105	5,600
1 1/8	Win 209	SR7625	22.0	Windjammer	1,105	5,700
1 1/8	Rem 209P	SR7625	22.0	Rem RXP12	1,105	5,800
1 1/8	Rem 209P	SR7625	22.0	Rem RXP12	1,105	5,800
1 1/8	Win 209	800-X	20.0	Rem Fig 8	1,105	6,100
1 1/8	Win 209	SR7625	22.0	Rem RXP12	1,105	6,200
1 1/8	Fed 209A	SR7625	21.5	CB1118-12	1,105	6,300
1 1/8	Fed 209A	PB	19.5	CB1118-12	1,105	6,600
1 1/8	Fed 209A	800-X	20.0	Win AA12	1,105	6,600
1 1/8	Fed 209A	PB	19.5	Rem RXP12	1,105	7,100
1 1/8	Win 209	PB	19.5	Fed 12S4	1,105	7,400
1 1/8	Win 209	700-X	15.5	CB1118-12	1,105	8,600
1 1/8	Win 209	700-X	15.5	Win AA12	1,105	9,200
1 1/8	Rem 209P	SR7625	22.0	Win AA12	1,110	6,000
1 1/8	Rem 209P	SR7625	22.0	Win AA12	1,110	6,000
1 1/8	Win 209	PB	20.0	Rem RXP12	1,110	6,900
1 1/8	Win 209	700-X	15.5	Windjammer	1,110	8,100
1 1/8	CCI 209	800-X	22.0	Rem Fig 8	1,135	5,700
1 1/8	Fed 209A	800-X	21.5	Rem Fig 8	1,135	5,700
1 1/8	Rem 209P	700-X	16.5	Fed 12S3	1,135	8,600
1 1/8	Win 209	700-X	16.5	Rem Fig 8	1,135	9,000
1 1/8	Fed 209A	700-X	16.0	Win AA12	1,135	10,000

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) Hull #28

12 Gauge 2 ¾" Lead Shot Load Data

12 Gauge 2 ¾"

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	PB	21.5	CB1118-12	1,140	6,100
1 1/8	Win 209	SR7625	23.0	Windjammer	1,140	6,200
1 1/8	Fed 209A	SR7625	22.5	Rem RXP12	1,140	6,800
1 1/8	Rem 209P	PB	21.0	Rem RXP12	1,140	7,000
1 1/8	Fed 209A	800-X	21.0	Win AA12	1,140	7,000
1 1/8	Rem 209P	PB	21.0	Win AA12	1,140	7,100
1 1/8	Fed 209A	PB	20.5	Rem RXP12	1,140	7,600
1 1/8	Rem 209P	PB	20.5	Fed 12S4	1,140	7,700
1 1/8	Fed 209A	700-X	16.0	Windjammer	1,140	9,000
1 1/8	Fed 209A	700-X	16.0	CB1118-12	1,140	9,400
1 1/8	Win 209	800-X	21.5	Windjammer	1,145	6,000
1 1/8	Rem 209P	SR7625	23.0	CB1118-12	1,145	6,300
1 1/8	Rem 209P	SR7625	23.0	Rem RXP12	1,145	6,300
1 1/8	Rem 209P	SR7625	23.0	CB1118-12	1,145	6,300
1 1/8	Rem 209P	SR7625	23.0	Rem RXP12	1,145	6,300
1 1/8	Rem 209P	International	20.1	Rem Fig 8	1,145	6,300
1 1/8	Rem 209P	PB	21.5	Windjammer	1,145	6,400
1 1/8	Rem 209P	SR7625	23.0	Win AA12	1,145	6,400
1 1/8	Rem 209P	SR7625	23.0	Win AA12	1,145	6,400
1 1/8	Win 209	SR7625	22.5	CB1118-12	1,145	6,500
1 1/8	Win 209	SR7625	23.0	Rem RXP12	1,145	6,600
1 1/8	Fed 209A	SR7625	22.5	CB1118-12	1,145	6,800
1 1/8	Rem 209P	SR7625	22.5	Fed 12S4	1,145	7,200
1 1/8	Rem 209P	SR7625	22.5	Fed 12S4	1,145	7,200
1 1/8	Win 209	800-X	21.0	Win AA12	1,145	7,200
1 1/8	Win 209	International	18.9	Red PC	1,145	7,200
1 1/8	Win 209	SR7625	22.5	Fed 12S4	1,145	7,500
1 1/8	Rem 209P	700-X	17.5	Windjammer	1,145	7,600
1 1/8	Fed 209A	International	18.0	Windjammer	1,145	7,700
1 1/8	Rem 209P	Clays	18.4	Red PC	1,145	7,800
1 1/8	CCI 209	International	19.2	Fed 12S3	1,145	7,900
1 1/8	Win 209	Green Dot	19.5	Hor Versalite	1,145	8,000
1 1/8	Win 209	PB	20.5	Fed 12S4	1,145	8,000
1 1/8	Win 209	American Select	18.5	Windjammer	1,145	8,100
1 1/8	Win 209	Green Dot	18.0	Rem RXP12	1,145	8,100
1 1/8	Win 209	Green Dot	18.5	Fed 12C1	1,145	8,100
1 1/8	Fed 209A	Green Dot	18.5	Windjammer	1,145	8,200
1 1/8	Win 209	Green Dot	19.0	Red PC	1,145	8,300
1 1/8	Rem 209P	International	18.3	Windjammer	1,145	8,300
1 1/8	Win 209	International	18.1	Win AA12	1,145	8,300
1 1/8	Win 209	Green Dot	18.0	Windjammer	1,145	8,400
1 1/8	Fed 209A	Green Dot	18.5	CB3118-12	1,145	8,400
1 1/8	Win 209	Red Dot	17.0	Rem RXP12	1,145	8,400
1 1/8	Rem 209P	700-X	17.0	Rem Fig 8	1,145	8,400
1 1/8	Win 209	Green Dot	18.0	Win AA12	1,145	8,500
1 1/8	Win 209	Clays	17.0	Rem Fig 8	1,145	8,500
1 1/8	Win 209	American Select	18.5	Red PC	1,145	8,600
1 1/8	Fed 209A	Green Dot	18.5	Rem Fig 8	1,145	8,600

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Green Dot	19.0	Rem Fig 8	1,145	8,600
1 1/8	CCI 209	Clays	16.8	Windjammer	1,145	8,600
1 1/8	Win 209	International	18.1	Hor Versalite	1,145	8,600
1 1/8	Win 209	International	18.0	Windjammer	1,145	8,600
1 1/8	Rem 209P	American Select	19.0	Win AA12	1,145	8,700
1 1/8	Fed 209A	Green Dot	18.5	Red PC	1,145	8,700
1 1/8	Rem 209P	Red Dot	17.5	Win AA12	1,145	8,700
1 1/8	Win 209	Clays	17.3	Win AA12	1,145	8,800
1 1/8	CCI 209	International	17.7	Windjammer	1,145	8,800
1 1/8	CCI 209SC	International	17.7	Windjammer	1,145	8,900
1 1/8	Win 209	American Select	18.0	Blue Duster	1,145	9,000
1 1/8	Win 209	American Select	18.5	CB3118-12	1,145	9,000
1 1/8	Fed 209A	Red Dot	17.0	Windjammer	1,145	9,000
1 1/8	Win 209	Titegroup	15.9	Win AA12	1,145	9,000
1 1/8	Win 209	Titegroup	15.9	Win AA12	1,145	9,000
1 1/8	Win 209	Red Dot	16.8	CB3118-12	1,145	9,100
1 1/8	CCI 209SC	Clays	16.7	Windjammer	1,145	9,100
1 1/8	Win 209	Clays	17.0	Red PC	1,145	9,100
1 1/8	Win 209	Titegroup	15.9	Rem Fig 8	1,145	9,200
1 1/8	Win 209	Titegroup	15.9	Rem Fig 8	1,145	9,200
1 1/8	Ched 209	International	18.5	Rem Fig 8	1,145	9,200
1 1/8	Ched 209	International	18.9	Windjammer	1,145	9,200
1 1/8	Fed 209A	Green Dot	18.0	Win AA12	1,145	9,300
1 1/8	Fed 209A	Green Dot	18.5	Hor Versalite	1,145	9,300
1 1/8	Win 209	Green Dot	19.0	Blue Duster	1,145	9,300
1 1/8	Win 209	Red Dot	17.5	Windjammer	1,145	9,300
1 1/8	Rem 209P	Titewad	16.8	Rem Fig 8	1,145	9,300
1 1/8	Win 209	International	18.0	Trapper	1,145	9,300
1 1/8	Win 209	Green Dot	19.1	CB3118-12	1,145	9,340
1 1/8	Win 209	American Select	18.0	Win AA12	1,145	9,400
1 1/8	Win 209	American Select	19.0	Rem Fig 8	1,145	9,400
1 1/8	Win 209	American Select	19.0	Rem RXP12	1,145	9,400
1 1/8	Win 209	Green Dot	18.0	Win WT12	1,145	9,400
1 1/8	Fio 616	Green Dot	18.5	Win AA12	1,145	9,400
1 1/8	Win 209	Green Dot	19.0	Win AA12SL	1,145	9,400
1 1/8	Win 209	Red Dot	17.5	Fed 12C1	1,145	9,400
1 1/8	CCI 209	Titewad	16.6	Windjammer	1,145	9,400
1 1/8	Rem 209P	Clays	17.0	Win AA12	1,145	9,400
1 1/8	Rem 209P	Clays	17.5	Windjammer	1,145	9,400
1 1/8	Win 209	Clays	17.6	Hor Versalite	1,145	9,400
1 1/8	CCI 209	International	17.7	Red PC	1,145	9,400
1 1/8	CCI 209SC	Green Dot	20.5	Windjammer	1,145	9,500
1 1/8	Win 209	Red Dot	17.5	Red PC	1,145	9,500
1 1/8	Win 209	Red Dot	18.0	Hor Versalite	1,145	9,500
1 1/8	Ched 209	Clays	17.4	Windjammer	1,145	9,500
1 1/8	Fio 616	Clays	16.3	Windjammer	1,145	9,500
1 1/8	Fio 616	International	17.6	Rem Fig 8	1,145	9,500
1 1/8	Rem 209P	International	17.8	Win AA12	1,145	9,500

12

12 Gauge 2 ¾"
Lead Shot Load Data

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) **Hull #28**

12 Gauge 2 ¾"

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	International	18.3	Rem Fig 8	1,145	9,500
1 1/8	CCI 209SC	American Select	18.5	Win AA12	1,145	9,600
1 1/8	Win 209	American Select	18.5	Win WT12	1,145	9,600
1 1/8	Fed 209A	Red Dot	17.0	CB3118-12	1,145	9,600
1 1/8	Fed 209A	700-X	16.5	Rem Fig 8	1,145	9,600
1 1/8	Rem 209P	Titegroup	15.6	Win AA12	1,145	9,600
1 1/8	Win 209	Titewad	16.3	Windjammer	1,145	9,600
1 1/8	CCI 209	Clays	16.8	Rem Fig 8	1,145	9,600
1 1/8	Rem 209P	Titegroup	15.6	Win AA12	1,145	9,600
1 1/8	CCI 209	International	17.2	Hor Versalite	1,145	9,600
1 1/8	Ched 209	International	18.1	Win AA12	1,145	9,600
1 1/8	Win 209	American Select	18.5	Win AA12SL	1,145	9,700
1 1/8	CCI 209SC	Green Dot	20.5	Rem Fig 8	1,145	9,700
1 1/8	Rem 209P	Titegroup	15.9	Rem Fig 8	1,145	9,700
1 1/8	Win 209	Titewad	15.9	Red PC	1,145	9,700
1 1/8	Win 209	Titewad	16.2	Rem Fig 8	1,145	9,700
1 1/8	Rem 209P	Titegroup	15.9	Rem Fig 8	1,145	9,700
1 1/8	Fed 209A	American Select	18.5	Win AA12	1,145	9,800
1 1/8	Fed 209A	Red Dot	17.0	Rem Fig 8	1,145	9,800
1 1/8	CCI 209	Clays	17.0	Win AA12	1,145	9,800
1 1/8	CCI 209SC	International	17.8	Red PC	1,145	9,800
1 1/8	CCI 209SC	International	17.5	Rem Fig 8	1,145	9,800
1 1/8	CCI 209SC	International	17.2	Win AA12	1,145	9,800
1 1/8	Rem 209P	International	18.0	Hawk	1,145	9,800
1 1/8	Win 209	Red Dot	17.5	Rem Fig 8	1,145	9,900
1 1/8	CCI 209SC	Red Dot	18.0	Windjammer	1,145	9,900
1 1/8	Win 209	e3	16.0	Win AA12	1,145	9,900
1 1/8	Fed 209A	700-X	16.5	Fed 12S3	1,145	9,900
1 1/8	CCI 209SC	International	17.5	Trapper	1,145	9,900
1 1/8	Win 209	International	18.0	Hawk	1,145	9,900
1 1/8	Win 209	Red Dot	17.0	Win AA12	1,145	10,000
1 1/8	Rem 209P	Titewad	16.2	Windjammer	1,145	10,000
1 1/8	CCI 209	Clays	17.0	Red PC	1,145	10,000
1 1/8	Rem 209P	International	17.8	Hor Versalite	1,145	10,000
1 1/8	CCI 209M	Green Dot	18.5	Win AA12	1,145	10,100
1 1/8	Fed 209A	Red Dot	17.0	Red PC	1,145	10,100
1 1/8	Ched 209	Titewad	16.8	Windjammer	1,145	10,100
1 1/8	Rem 209P	Clays	17.3	Rem Fig 8	1,145	10,100
1 1/8	CCI 209	International	17.8	Rem Fig 8	1,145	10,100
1 1/8	Fed 209A	International	17.0	Rem Fig 8	1,145	10,100
1 1/8	Fio 616	Red Dot	17.0	Win AA12	1,145	10,200
1 1/8	Ched 209	Clays	17.5	Rem Fig 8	1,145	10,200
1 1/8	CCI 209SC	Green Dot	19.5	Win AA12	1,145	10,300
1 1/8	Fed 209A	Red Dot	17.0	Hor Versalite	1,145	10,300
1 1/8	Fed 209A	International	16.8	Win AA12	1,145	10,300
1 1/8	CCI 209M	Red Dot	17.5	Win AA12	1,145	10,400
1 1/8	Win 209	Titewad	16.5	Win AA12	1,145	10,400
1 1/8	CCI 209SC	Clays	16.5	Rem Fig 8	1,145	10,400

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	International	17.2	Red PC	1,145	10,400
1 1/8	CCI 209SC	Red Dot	18.0	Rem Fig 8	1,145	10,500
1 1/8	Win 209	Titewad	15.5	Hawk	1,145	10,500
1 1/8	CCI 209	International	17.4	Win AA12	1,145	10,500
1 1/8	Win 209	Red Dot	16.5	Blue Duster	1,145	10,600
1 1/8	Fed 209A	Red Dot	17.0	Win AA12	1,145	10,600
1 1/8	CCI 209SC	Red Dot	17.5	Win AA12	1,145	10,600
1 1/8	Fed 209A	Titewad	16.6	Rem Fig 8	1,145	10,600
1 1/8	Fed 209A	Titewad	16.0	Windjammer	1,145	10,600
1 1/8	CCI 209SC	Clays	16.0	Win AA12	1,145	10,600
1 1/8	Win 209	Clays	16.9	Lage Uniwad	1,145	10,600
1 1/8	Win 209	Red Dot	16.5	Win WT12	1,145	10,700
1 1/8	Ched 209	Titewad	16.6	Rem Fig 8	1,145	10,700
1 1/8	Win 209	Titewad	16.3	CB3118-12AR	1,145	10,700
1 1/8	Ched 209	Clays	17.2	Win AA12	1,145	10,700
1 1/8	Fed 209A	Titewad	16.8	Fed 12S3	1,145	10,800
1 1/8	Fed 209A	Titewad	16.4	Win AA12	1,145	10,800
1 1/8	Fed 209A	Clays	16.0	Win AA12	1,145	10,800
1 1/8	CCI 209	Titewad	16.0	Win AA12	1,145	10,900
1 1/8	Ched 209	Titewad	16.4	Win AA12	1,145	10,900
1 1/8	Fio 616	Clays	16.0	Win AA12	1,145	10,900
1 1/8	Fed 209A	Titewad	16.6	Red PC	1,145	11,000
1 1/8	Fio 616	International	17.0	Win AA12	1,145	11,000
1 1/8	Fed 209A	Clays	16.6	Rem Fig 8	1,145	11,100
1 1/8	CCI 209	Titewad	16.5	Rem Fig 8	1,145	11,200
1 1/8	Rem 209P	Titewad	16.4	Win AA12	1,145	11,200
1 1/8	Fed 209A	Titewad	16.3	Hor Versalite	1,145	11,400
1 1/8	CCI 209SC	Clays	16.0	Trapper	1,145	11,400
1 1/8	Fed 209A	WST	18.5	Win AA12	1,145	10,700
1 1/8	Fed 209A	WSF	21.5	Win AA12SL	1,145	7,200
1 1/8	Win 209	WST	19.0	Rem Fig 8	1,145	8,400
1 1/8	Win 209	WST	18.5	Win AA12	1,145	8,600
1 1/8	Win 209	WST	19.0	Rem RXP12	1,145	8,700
1 1/8	CCI 209	WST	19.5	Rem RXP12	1,145	8,800
1 1/8	CCI 209	WST	19.0	Rem Fig 8	1,145	9,000
1 1/8	CCI 209	WST	19.0	Win AA12	1,145	9,100
1 1/8	CCI 209	WST	19.0	Fed 12S3	1,145	9,500
1 1/8	Win 209	WST	19.0	Fed 12S3	1,145	9,800
1 1/8	CCI 209	800-X	22.5	Windjammer	1,150	5,400
1 1/8	CCI 209	800-X	22.5	CB1118-12	1,150	5,400
1 1/8	Fed 209A	800-X	22.0	Windjammer	1,150	5,800
1 1/8	Rem 209P	SR7625	23.5	Windjammer	1,150	5,900
1 1/8	Rem 209P	SR7625	23.5	Windjammer	1,150	5,900
1 1/8	CCI 209	800-X	22.0	Fed 12S3	1,150	6,400
1 1/8	Win 209	800-X	21.5	CB1118-12	1,150	6,500
1 1/8	Win 209	800-X	21.0	Rem Fig 8	1,150	6,600
1 1/8	Fed 209A	800-X	21.0	Fed 12S3	1,150	7,100
1 1/8	Win 209	SR7625	22.5	Win AA12	1,150	7,300

12 Gauge 2 3/4" Lead Shot Load Data

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) **Hull #28**

12 Gauge 2 3/4"

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	PB	21.0	Win AA12	1,150	7,700
1 1/8	Rem 209P	700-X	17.0	CB1118-12	1,150	7,900
1 1/8	Fed 209A	PB	20.5	Win AA12	1,150	8,200
1 1/8	Fed 209A	PB	20.5	Fed 12S4	1,150	8,300
1 1/8	Win 209	700-X	16.5	Windjammer	1,150	8,900
1 1/8	Rem 209P	700-X	17.0	Win AA12	1,150	9,000
1 1/8	Win 209	700-X	16.5	CB1118-12	1,150	9,500
1 1/8	Win 209	700-X	16.5	Win AA12	1,150	10,100
1 1/8	Win 209	700-X	16.5	Fed 12S3	1,150	10,400
1 1/8	Fed 209A	800-X	22.0	CB1118-12	1,155	6,300
1 1/8	Fed 209A	SR7625	23.5	Windjammer	1,155	6,400
1 1/8	CCI 209	800-X	22.0	Win AA12	1,155	6,500
1 1/8	Win 209	PB	21.5	Windjammer	1,155	6,900
1 1/8	Fed 209A	PB	21.0	Windjammer	1,155	7,000
1 1/8	Win 209	PB	21.5	CB1118-12	1,155	7,000
1 1/8	Win 209	800-X	21.5	Fed 12S3	1,155	7,100
1 1/8	Fed 209A	PB	21.0	CB1118-12	1,155	7,400
1 1/8	Fed 209A	SR7625	22.5	Win AA12	1,155	7,400
1 1/8	Win 209	PB	21.0	Rem RXP12	1,155	7,500
1 1/8	Fed 209A	SR7625	22.5	Fed 12S4	1,155	7,600
1 1/8	Fed 209A	SR7625	22.5	Fed 12S4	1,155	7,600
1 1/8	Rem 209P	SR7625	24.5	Windjammer	1,190	6,400
1 1/8	Rem 209P	SR7625	24.5	Windjammer	1,190	6,400
1 1/8	Win 209	800-X	22.5	Windjammer	1,190	6,700
1 1/8	CCI 209	800-X	23.0	Fed 12S3	1,190	6,800
1 1/8	Win 209	800-X	22.0	Win AA12	1,190	7,800
1 1/8	Fed 209A	SR7625	23.5	Win AA12	1,190	7,900
1 1/8	Win 209	SR7625	23.5	Win AA12	1,190	7,900
1 1/8	Rem 209P	700-X	18.0	Fed 12S3	1,190	9,700
1 1/8	Win 209	700-X	17.5	Win AA12	1,190	10,800
1 1/8	Win 209	700-X	17.5	Fed 12S3	1,190	11,100
1 1/8	CCI 209	800-X	24.0	Windjammer	1,195	5,800
1 1/8	CCI 209	800-X	23.5	Rem Fig 8	1,195	6,300
1 1/8	Fed 209A	800-X	23.0	Windjammer	1,195	6,500
1 1/8	Fed 209A	800-X	23.0	CB3118-12	1,195	6,800
1 1/8	CCI 209	800-X	23.0	Win AA12	1,195	7,000
1 1/8	Win 209	800-X	22.5	Rem Fig 8	1,195	7,000
1 1/8	Rem 209P	SR7625	24.5	Win AA12	1,195	7,200
1 1/8	Rem 209P	SR7625	24.5	Win AA12	1,195	7,200
1 1/8	Win 209	SR7625	24.0	CB1118-12	1,195	7,300
1 1/8	Fed 209A	SR7625	24.0	CB1118-12	1,195	7,600
1 1/8	Win 209	800-X	22.5	Fed 12S3	1,195	7,600
1 1/8	Fed 209A	SR7625	24.0	Rem RXP12	1,195	7,700
1 1/8	Fed 209A	SR7625	23.5	Fed 12S4	1,195	8,300
1 1/8	Fed 209A	SR7625	23.5	Fed 12S4	1,195	8,300
1 1/8	Fed 209A	PB	22.0	Rem RXP12	1,195	8,400
1 1/8	Rem 209P	700-X	19.0	Windjammer	1,195	8,500
1 1/8	Rem 209P	PB	22.0	Fed 12S4	1,195	8,600

Hull #28 (Continued)

12 Gauge 2 ¾″

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾″
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	700-X	18.0	CB1118-12	1,195	8,900
1 1/8	Win 209	700-X	17.5	Windjammer	1,195	9,700
1 1/8	Win 209	700-X	17.5	CB1118-12	1,195	10,200
1 1/8	CCI 209	800-X	24.0	CB1118-12	1,200	6,100
1 1/8	Fed 209A	800-X	23.0	Rem Fig 8	1,200	6,700
1 1/8	Win 209	SR7625	24.5	Windjammer	1,200	6,900
1 1/8	Rem 209P	PB	23.0	CB1118-12	1,200	7,100
1 1/8	Fed 209A	SR7625	24.5	Windjammer	1,200	7,200
1 1/8	Rem 209P	Unique	23.0	Win AA12	1,200	7,500
1 1/8	Win 209	SR7625	24.5	Rem RXP12	1,200	7,500
1 1/8	Rem 209P	PB	23.0	Win AA12	1,200	7,700
1 1/8	Rem 209P	International	21.1	Rem Fig 8	1,200	7,700
1 1/8	Fed 209A	800-X	22.5	Win AA12	1,200	7,800
1 1/8	Fed 209A	800-X	22.5	Fed 12S3	1,200	7,800
1 1/8	Rem 209P	PB	22.5	Rem RXP12	1,200	8,000
1 1/8	CCI 209	Universal	23.3	Windjammer	1,200	8,000
1 1/8	Win 209	Unique	21.0	Hor Versalite	1,200	8,200
1 1/8	Win 209	Unique	22.5	Windjammer	1,200	8,200
1 1/8	CCI 209SC	Universal	22.4	Windjammer	1,200	8,200
1 1/8	Win 209	Unique	22.0	Blue Duster	1,200	8,300
1 1/8	Win 209	Unique	22.5	Rem Fig 8	1,200	8,300
1 1/8	CCI 209	International	20.0	Fed 12S3	1,200	8,300
1 1/8	Win 209	International	20.2	Red PC	1,200	8,300
1 1/8	Win 209	SR7625	24.0	Fed 12S4	1,200	8,400
1 1/8	Rem 209P	Clays	19.6	Red PC	1,200	8,400
1 1/8	Win 209	Unique	22.0	Rem RXP12	1,200	8,700
1 1/8	Win 209	Unique	22.5	CB3118-12	1,200	8,800
1 1/8	Win 209	Green Dot	19.5	Rem RXP12	1,200	8,900
1 1/8	Win 209	Unique	22.0	Fed 12C1	1,200	8,900
1 1/8	Win 209	PB	22.0	Fed 12S4	1,200	8,900
1 1/8	Win 209	Green Dot	19.5	Fed 12C1	1,200	9,000
1 1/8	Win 209	Green Dot	21.0	Hor Versalite	1,200	9,000
1 1/8	Win 209	Green Dot	21.0	Windjammer	1,200	9,000
1 1/8	Win 209	Unique	21.5	Win WT12	1,200	9,000
1 1/8	Rem 209P	International	19.2	Windjammer	1,200	9,000
1 1/8	Win 209	Universal	22.5	Rem Fig 8	1,200	9,000
1 1/8	Win 209	Unique	21.0	Win AA12	1,200	9,100
1 1/8	Fio 616	Unique	21.5	Win AA12	1,200	9,100
1 1/8	Win 209	Unique	22.5	Win AA12SL	1,200	9,100
1 1/8	Fed 209A	PB	22.0	Fed 12S4	1,200	9,100
1 1/8	Win 209	American Select	20.5	Windjammer	1,200	9,200
1 1/8	Fed 209A	Green Dot	20.0	Windjammer	1,200	9,200
1 1/8	Win 209	Green Dot	20.0	Win WT12	1,200	9,200
1 1/8	Fed 209A	Green Dot	19.5	CB3118-12	1,200	9,300
1 1/8	Win 209	Green Dot	19.5	Win AA12	1,200	9,300
1 1/8	Fed 209A	Green Dot	19.5	Rem Fig 8	1,200	9,400
1 1/8	Win 209	Green Dot	20.0	Blue Duster	1,200	9,400
1 1/8	Win 209	Clays	18.1	Rem Fig 8	1,200	9,400

12

12 Gauge 2 ¾"
Lead Shot Load Data

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) **Hull #28**

12 Gauge 2 ¾"

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fio 616	Green Dot	20.0	Win AA12	1,200	9,500
1 1/8	Win 209	Green Dot	20.5	Rem Fig 8	1,200	9,500
1 1/8	Rem 209P	Red Dot	19.0	Win AA12	1,200	9,500
1 1/8	Win 209	Unique	23.5	Red PC	1,200	9,500
1 1/8	Fed 209A	International	19.5	Windjammer	1,200	9,500
1 1/8	Rem 209P	American Select	21.0	Win AA12	1,200	9,600
1 1/8	Win 209	International	19.2	Win AA12	1,200	9,600
1 1/8	Fed 209A	Universal	21.5	Win AA12	1,200	9,600
1 1/8	Win 209	Red Dot	18.5	Fed 12C1	1,200	9,700
1 1/8	Win 209	Red Dot	19.0	Hor Versalite	1,200	9,700
1 1/8	Win 209	American Select	20.0	Rem Fig 8	1,200	9,800
1 1/8	Rem 209P	Green Dot	20.0	Win AA12	1,200	9,800
1 1/8	Win 209	Green Dot	20.0	CB3118-12	1,200	9,800
1 1/8	Win 209	Green Dot	20.5	Red PC	1,200	9,800
1 1/8	Win 209	Red Dot	18.5	Rem RXP12	1,200	9,800
1 1/8	Win 209	Clays	18.2	Win AA12	1,200	9,800
1 1/8	CCI 209	International	19.5	Windjammer	1,200	9,800
1 1/8	Win 209	International	19.2	Hor Versalite	1,200	9,800
1 1/8	Win 209	International	19.5	Windjammer	1,200	9,800
1 1/8	Win 209	Red Dot	18.5	Windjammer	1,200	9,900
1 1/8	CCI 209M	Universal	22.0	Hor Versalite	1,200	9,900
1 1/8	Win 209	American Select	19.5	Blue Duster	1,200	10,000
1 1/8	Fed 209A	Red Dot	18.0	Red PC	1,200	10,000
1 1/8	Fed 209A	Red Dot	18.0	Windjammer	1,200	10,000
1 1/8	Win 209	Universal	22.0	Win AA12	1,200	10,000
1 1/8	CCI 209SC	American Select	19.5	Win AA12	1,200	10,100
1 1/8	Win 209	American Select	20.0	Red PC	1,200	10,100
1 1/8	Fed 209A	700-X	17.5	Windjammer	1,200	10,100
1 1/8	Win 209	American Select	19.5	CB3118-12	1,200	10,200
1 1/8	Fed 209A	Green Dot	19.0	Win AA12	1,200	10,200
1 1/8	CCI 209SC	Green Dot	22.0	Windjammer	1,200	10,200
1 1/8	Fed 209A	Red Dot	18.5	Rem Fig 8	1,200	10,200
1 1/8	Win 209	700-X	18.0	Rem Fig 8	1,200	10,200
1 1/8	Win 209	Titegroup	16.9	Rem Fig 8	1,200	10,200
1 1/8	Win 209	Titegroup	16.9	Rem Fig 8	1,200	10,200
1 1/8	Fio 616	International	18.3	Rem Fig 8	1,200	10,200
1 1/8	Win 209	International	19.0	Hawk	1,200	10,200
1 1/8	Win 209	American Select	19.5	Win AA12	1,200	10,300
1 1/8	CCI 209M	Unique	21.5	Win AA12	1,200	10,300
1 1/8	CCI 209SC	International	18.5	Red PC	1,200	10,300
1 1/8	Ched 209	International	19.8	Windjammer	1,200	10,300
1 1/8	Fed 209A	Green Dot	19.5	Hor Versalite	1,200	10,400
1 1/8	CCI 209M	Green Dot	20.0	Win AA12	1,200	10,400
1 1/8	CCI 209SC	Green Dot	22.0	Rem Fig 8	1,200	10,400
1 1/8	Win 209	Red Dot	18.0	Win AA12	1,200	10,400
1 1/8	CCI 209SC	Red Dot	18.5	Rem Fig 8	1,200	10,400
1 1/8	Win 209	Titegroup	17.4	Win AA12	1,200	10,400
1 1/8	Rem 209P	Titewad	18.3	Rem Fig 8	1,200	10,400

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Clays	18.5	Windjammer	1,200	10,400
1 1/8	Win 209	Titegroup	17.4	Win AA12	1,200	10,400
1 1/8	Win 209	International	19.0	Trapper	1,200	10,400
1 1/8	Win 209	e3	17.0	Win AA12	1,200	10,450
1 1/8	Fed 209A	Green Dot	19.5	Red PC	1,200	10,500
1 1/8	Fio 616	Red Dot	18.0	Win AA12	1,200	10,500
1 1/8	CCI 209M	Red Dot	18.5	Win AA12	1,200	10,500
1 1/8	Fed 209A	Red Dot	18.5	CB3118-12	1,200	10,500
1 1/8	Win 209	Red Dot	18.5	CB3118-12	1,200	10,500
1 1/8	Win 209	Red Dot	18.5	Red PC	1,200	10,500
1 1/8	Win 209	Titewad	17.8	Windjammer	1,200	10,500
1 1/8	CCI 209SC	International	18.5	Rem Fig 8	1,200	10,500
1 1/8	Ched 209	International	19.7	Rem Fig 8	1,200	10,500
1 1/8	Rem 209P	Titegroup	16.5	Win AA12	1,200	10,600
1 1/8	Win 209	Clays	18.8	Hor Versalite	1,200	10,600
1 1/8	Rem 209P	Titegroup	16.5	Win AA12	1,200	10,600
1 1/8	CCI 209SC	International	19.0	Windjammer	1,200	10,600
1 1/8	Win 209	American Select	19.5	Win WT12	1,200	10,700
1 1/8	Win 209	American Select	20.5	Rem RXP12	1,200	10,700
1 1/8	CCI 209SC	Green Dot	20.5	Win AA12	1,200	10,700
1 1/8	Win 209	Green Dot	20.5	Win AA12SL	1,200	10,700
1 1/8	Win 209	Red Dot	17.0	Win WT12	1,200	10,700
1 1/8	Fed 209A	Red Dot	18.0	Hor Versalite	1,200	10,700
1 1/8	Win 209	Red Dot	18.5	Rem Fig 8	1,200	10,700
1 1/8	Fed 209A	700-X	17.5	CB1118-12	1,200	10,700
1 1/8	Rem 209P	Titegroup	17.0	Rem Fig 8	1,200	10,700
1 1/8	Rem 209P	Titegroup	17.0	Rem Fig 8	1,200	10,700
1 1/8	CCI 209	International	19.0	Red PC	1,200	10,700
1 1/8	Fed 209A	American Select	19.5	Win AA12	1,200	10,800
1 1/8	Win 209	Red Dot	19.0	Blue Duster	1,200	10,800
1 1/8	Rem 209P	International	19.0	Hawk	1,200	10,800
1 1/8	CCI 209	Titewad	17.8	Windjammer	1,200	10,900
1 1/8	Win 209	Clays	18.3	Red PC	1,200	10,900
1 1/8	CCI 209SC	International	18.5	Win AA12	1,200	10,900
1 1/8	Fed 209A	International	18.0	Rem Fig 8	1,200	10,900
1 1/8	Fed 209A	International	17.5	Win AA12	1,200	10,900
1 1/8	Rem 209P	Titewad	17.0	Windjammer	1,200	11,100
1 1/8	Win 209	Titewad	17.5	Rem Fig 8	1,200	11,100
1 1/8	Win 209	Titewad	17.8	Win AA12	1,200	11,100
1 1/8	CCI 209	Clays	18.5	Windjammer	1,200	11,100
1 1/8	Ched 209	Clays	19.0	Windjammer	1,200	11,100
1 1/8	Ched 209	International	19.3	Win AA12	1,200	11,100
1 1/8	Rem 209P	International	18.7	Win AA12	1,200	11,100
1 1/8	CCI 209	International	18.5	Rem Fig 8	1,200	11,200
1 1/8	Fed 209A	700-X	17.5	Win AA12	1,200	11,300
1 1/8	CCI 209	Clays	18.1	Win AA12	1,200	11,300
1 1/8	CCI 209	International	18.2	Hor Versalite	1,200	11,300
1 1/8	Win 209	Titewad	17.7	CB3118-12AR	1,200	11,400

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	CCI 209	Clays	18.3	Red PC	1,200	11,400
1 1/8	Fed 209A	Clays	18.0	Windjammer	1,200	11,400
1 1/8	CCI 209	International	18.2	Win AA12	1,200	11,400
1 1/8	CCI 209SC	Clays	17.8	Windjammer	1,200	11,500
1 1/8	Rem 209P	Clays	18.5	Rem Fig 8	1,200	11,500
1 1/8	Fed 209A	International	18.5	Red PC	1,200	11,500
1 1/8	Win 209	WST	20.5	Rem Fig 8	1,200	10,000
1 1/8	CCI 209	WST	20.5	Rem Fig 8	1,200	10,000
1 1/8	CCI 209	WST	20.5	Win AA12	1,200	10,300
1 1/8	CCI 209	WST	20.5	Rem RXP12	1,200	10,300
1 1/8	CCI 209	WST	20.5	Fed 12S3	1,200	10,800
1 1/8	Win 209	WST	20.0	Fed 12S3	1,200	10,900
1 1/8	Fed 209A	WSF	23.0	Win AA12SL	1,200	8,400
1 1/8	Win 209	WST	20.0	Rem SP12	1,200	9,700
1 1/8	Win 209	WST	20.0	Win AA12	1,200	9,800
1 1/8	Win 209	800-X	23.0	CB1118-12	1,205	7,100
1 1/8	Rem 209P	PB	23.0	Windjammer	1,205	7,300
1 1/8	Rem 209P	SR7625	24.5	CB1118-12	1,205	7,300
1 1/8	Rem 209P	SR7625	24.5	CB1118-12	1,205	7,300
1 1/8	Win 209	PB	23.0	Windjammer	1,205	7,400
1 1/8	Rem 209P	SR7625	24.5	Rem RXP12	1,205	7,400
1 1/8	Rem 209P	SR7625	24.5	Rem RXP12	1,205	7,400
1 1/8	Fed 209A	PB	22.5	Windjammer	1,205	7,800
1 1/8	Fed 209A	PB	22.5	CB1118-12	1,205	7,900
1 1/8	Rem 209P	SR7625	24.0	Fed 12S4	1,205	8,100
1 1/8	Rem 209P	SR7625	24.0	Fed 12S4	1,205	8,100
1 1/8	Win 209	PB	22.5	Rem RXP12	1,205	8,500
1 1/8	Win 209	PB	22.5	Win AA12	1,205	8,600
1 1/8	Fed 209A	PB	22.0	Win AA12	1,205	8,900
1 1/8	Rem 209P	700-X	18.5	Rem Fig 8	1,205	9,500
1 1/8	Rem 209P	700-X	18.5	Win AA12	1,205	9,800
1 1/8	Fed 209A	700-X	18.0	Rem Fig 8	1,205	10,600
1 1/8	Fed 209A	700-X	18.0	Fed 12S3	1,205	11,200
1 1/8	Win 209	PB	23.0	CB1118-12	1,210	7,900
1 1/8	Fed 209A	700-X	19.0	Rem Fig 8	1,240	11,200
1 1/8	Fed 209A	SR7625	25.5	Windjammer	1,245	7,900
1 1/8	Rem 209P	700-X	20.5	Windjammer	1,245	9,300
1 1/8	Fed 209A	700-X	18.5	CB1118-12	1,245	11,500
1 1/8	CCI 209	800-X	25.5	CB1118-12	1,250	6,700
1 1/8	Rem 209P	SR7625	26.0	Windjammer	1,250	7,200
1 1/8	Rem 209P	SR7625	26.0	Windjammer	1,250	7,200
1 1/8	Fed 209A	800-X	24.5	CB1118-12	1,250	7,500
1 1/8	Rem 209P	PB	24.5	CB1118-12	1,250	7,700
1 1/8	CCI 209	800-X	24.5	Win AA12	1,250	7,700
1 1/8	Rem 209P	SR7625	25.5	CB1118-12	1,250	8,000
1 1/8	Rem 209P	SR7625	25.5	CB1118-12	1,250	8,000
1 1/8	Rem 209P	SR7625	25.5	Rem RXP12	1,250	8,200
1 1/8	Rem 209P	SR7625	25.5	Rem RXP12	1,250	8,200

Hull #28 (Continued)
12 Gauge 2 ¾"
Hull I.D. Page 95
Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	SR7625	25.5	CB1118-12	1,250	8,400
1 1/8	Win 209	800-X	24.0	Fed 12S3	1,250	8,400
1 1/8	Win 209	PB	24.0	CB1118-12	1,250	8,500
1 1/8	Fed 209A	SR7625	25.5	Rem RXP12	1,250	8,600
1 1/8	Win 209	Unique	24.0	Rem Fig 8	1,250	9,000
1 1/8	Win 209	Herco	25.0	Red PC	1,250	9,100
1 1/8	Win 209	Herco	25.0	Rem Fig 8	1,250	9,100
1 1/8	Win 209	Herco	24.5	Hor Versalite	1,250	9,200
1 1/8	Win 209	Herco	25.0	Rem RXP12	1,250	9,200
1 1/8	Win 209	Unique	23.0	Rem RXP12	1,250	9,200
1 1/8	Rem 209P	Unique	24.0	Win AA12	1,250	9,300
1 1/8	Fed 209A	PB	23.5	Rem RXP12	1,250	9,300
1 1/8	Rem 209P	American Select	22.5	Rem Fig 8	1,250	9,400
1 1/8	Win 209	Herco	23.5	Win WT12	1,250	9,400
1 1/8	Win 209	Herco	25.0	Fed 12C1	1,250	9,400
1 1/8	Win 209	Unique	23.5	Win AA12	1,250	9,400
1 1/8	Win 209	Unique	24.0	Hor Versalite	1,250	9,400
1 1/8	Win 209	Green Dot	21.0	Rem RXP12	1,250	9,500
1 1/8	Win 209	Herco	25.0	Win AA12	1,250	9,500
1 1/8	Win 209	Unique	22.5	Win WT12	1,250	9,500
1 1/8	Win 209	Unique	23.0	Fed 12C1	1,250	9,500
1 1/8	Win 209	Green Dot	21.5	Win WT12	1,250	9,800
1 1/8	Win 209	Green Dot	22.0	Hor Versalite	1,250	9,900
1 1/8	Win 209	Unique	24.0	Win AA12SL	1,250	9,900
1 1/8	Win 209	Unique	24.5	Red PC	1,250	10,000
1 1/8	Fio 616	Green Dot	23.5	Win AA12	1,250	10,100
1 1/8	Win 209	Green Dot	21.0	Fed 12C1	1,250	10,200
1 1/8	Rem 209P	700-X	19.5	Rem Fig 8	1,250	10,200
1 1/8	Win 209	Green Dot	22.0	Red PC	1,250	10,300
1 1/8	Win 209	Green Dot	22.0	Rem Fig 8	1,250	10,300
1 1/8	Win 209	Green Dot	21.5	Win AA12	1,250	10,500
1 1/8	Fio 616	Red Dot	22.0	Win AA12	1,250	10,500
1 1/8	Win 209	American Select	20.5	CB3118-12	1,250	10,700
1 1/8	Win 209	American Select	21.0	Rem RXP12	1,250	10,800
1 1/8	Win 209	American Select	21.5	Red PC	1,250	10,800
1 1/8	Rem 209P	700-X	19.5	Fed 12S3	1,250	10,900
1 1/8	Win 209	700-X	19.0	Windjammer	1,250	11,000
1 1/8	Win 209	800-X	24.5	Rem Fig 8	1,255	7,700
1 1/8	CCI 209	800-X	24.5	Fed 12S3	1,255	7,800
1 1/8	Rem 209P	PB	24.5	Windjammer	1,255	7,900
1 1/8	Win 209	SR7625	26.0	Windjammer	1,255	7,900
1 1/8	Rem 209P	SR7625	26.0	Win AA12	1,255	8,000
1 1/8	Rem 209P	SR7625	26.0	Win AA12	1,255	8,000
1 1/8	Rem 209P	International	22.1	Rem Fig 8	1,255	8,000
1 1/8	Win 209	SR7625	26.0	Rem RXP12	1,255	8,300
1 1/8	Fed 209A	800-X	24.0	Fed 12S3	1,255	8,500
1 1/8	Fed 209A	PB	24.0	CB1118-12	1,255	8,600
1 1/8	Rem 209P	PB	24.0	Rem RXP12	1,255	8,900

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) **Hull #28**

12 Gauge 2 ¾"

12 Gauge 2 ¾" Lead Shot Load Data

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	CCI 209SC	Universal	24.0	Windjammer	1,255	9,000
1 1/8	Rem 209P	SR7625	25.5	Fed 12S4	1,255	9,100
1 1/8	Rem 209P	SR7625	25.5	Fed 12S4	1,255	9,100
1 1/8	Fed 209A	SR7625	25.0	Fed 12S4	1,255	9,300
1 1/8	Fed 209A	SR7625	25.0	Fed 12S4	1,255	9,300
1 1/8	CCI 209	Universal	24.3	Windjammer	1,255	9,300
1 1/8	Win 209	International	21.3	Red PC	1,255	9,700
1 1/8	Win 209	PB	23.5	Fed 12S4	1,255	9,900
1 1/8	Win 209	Universal	23.5	Rem Fig 8	1,255	10,000
1 1/8	Fed 209A	PB	23.5	Fed 12S4	1,255	10,100
1 1/8	CCI 209	International	21.6	Fed 12S3	1,255	10,200
1 1/8	Win 209	International	20.8	Windjammer	1,255	10,300
1 1/8	Rem 209P	700-X	19.5	CB1118-12	1,255	10,400
1 1/8	Win 209	Universal	22.7	Win AA12	1,255	10,600
1 1/8	CCI 209M	Universal	23.0	Hor Versalite	1,255	10,700
1 1/8	Fed 209A	Universal	22.8	Win AA12	1,255	10,700
1 1/8	Rem 209P	International	20.8	Windjammer	1,255	10,800
1 1/8	Win 209	International	21.3	Win AA12	1,255	10,800
1 1/8	Fed 209A	700-X	19.0	Windjammer	1,255	11,000
1 1/8	Win 209	700-X	19.0	CB1118-12	1,255	11,200
1 1/8	CCI 209SC	International	20.7	Windjammer	1,255	11,200
1 1/8	Fed 209A	International	21.3	Windjammer	1,255	11,200
1 1/8	CCI 209	International	20.5	Red PC	1,255	11,300
1 1/8	Win 209	700-X	19.5	Rem Fig 8	1,255	11,400
1 1/8	Win 209	Titegroup	18.4	Win AA12	1,255	11,400
1 1/8	Win 209	Titegroup	18.4	Win AA12	1,255	11,400
1 1/8	Win 209	International	20.0	Hawk	1,255	11,400
1 1/8	CCI 209	International	20.5	Windjammer	1,255	11,500
1 1/8	CCI 209SC	International	20.5	Red PC	1,255	11,500
1 1/8	Ched 209	International	20.8	Windjammer	1,255	11,500
1 1/8	Fed 209A	WSF	24.0	Win AA12SL	1,255	9,100
1 1/8	CCI 209	800-X	26.0	Windjammer	1,260	6,200
1 1/8	CCI 209	800-X	25.5	Rem Fig 8	1,260	6,900
1 1/8	Fed 209A	800-X	24.5	Rem Fig 8	1,260	7,700
1 1/8	Win 209	800-X	24.0	Windjammer	1,260	7,700
1 1/8	Win 209	800-X	24.5	CB1118-12	1,260	7,800
1 1/8	Win 209	PB	24.5	Windjammer	1,260	8,400
1 1/8	Fed 209A	800-X	24.0	Win AA12	1,260	8,600
1 1/8	Fed 209A	PB	24.0	Windjammer	1,260	8,700
1 1/8	Rem 209P	PB	24.5	Win AA12	1,260	8,800
1 1/8	Fed 209A	SR7625	25.5	Win AA12	1,260	9,100
1 1/8	Win 209	SR7625	25.5	Fed 12S4	1,260	9,200
1 1/8	Rem 209P	PB	24.0	Fed 12S4	1,260	9,600
1 1/8	Fed 209A	PB	23.5	Win AA12	1,260	9,700
1 1/8	Rem 209P	700-X	20.0	Win AA12	1,260	10,800
1 1/8	Fed 209A	800-X	24.5	Windjammer	1,265	7,600
1 1/8	Win 209	SR7625	26.0	CB1118-12	1,265	8,200
1 1/8	Win 209	800-X	24.0	Win AA12	1,265	8,800

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	PB	24.0	Win AA12	1,265	9,400
1 1/8	Win 209	PB	24.0	Rem RXP12	1,265	9,500
1 1/8	Win 209	SR7625	25.5	Win AA12	1,265	9,600
1 1/8	Rem 209P	Herco	27.0	Win AA12	1,310	8,100
1 1/8	Win 209	Herco	26.5	Rem RXP12	1,310	9,100
1 1/8	Win 209	Unique	25.0	Red PC	1,310	9,100
1 1/8	Win 209	Herco	26.5	Win AA12	1,310	9,300
1 1/8	CCI 209M	Unique	25.5	Win AA12	1,310	9,700
1 1/8	Rem 209P	Unique	26.0	Win AA12	1,310	9,700
1 1/8	Win 209	Unique	24.0	Rem RXP12	1,310	9,800
1 1/8	CCI 209SC	Universal	24.4	Windjammer	1,310	9,800
1 1/8	Win 209	Herco	26.5	Hor Versalite	1,310	9,900
1 1/8	Win 209	Unique	25.5	Win AA12	1,310	10,000
1 1/8	Win 209	Green Dot	23.0	Red PC	1,310	10,200
1 1/8	Win 209	Unique	25.0	Hor Versalite	1,310	10,300
1 1/8	Win 209	Universal	24.5	Rem Fig 8	1,310	10,700
1 1/8	Fed 209A	Universal	23.6	Win AA12	1,310	11,300
1 1/8	Win 209	WSF	27.5	Fed 12S3	1,310	8,500
1 1/8	Win 209	WSF	27.5	Win AA12	1,310	8,700
1 1/8	Fed 209A	WSF	25.5	Win AA12SL	1,310	9,800
1 1/8	Win 209	WSF	28.5	Fed 12S3	1,365	9,500
1 1/8	Win 209	WSF	29.0	Win AA12	1,365	9,900
1 1/8	Win 209	WSF	30.0	Win AA12	1,400	10,600
1 1/8	Win 209	WSF	29.5	Fed 12S3	1,400	10,800
1 1/8	Win 209	Longshot	33.4	Rem R12L	1,420	8,100
1 1/8	Win 209	Longshot	32.2	Hor Versalite	1,420	8,600
1 1/8	CCI 209M	Longshot	32.2	Windjammer	1,420	8,700
1 1/8	Rem 209P	Longshot	31.9	Windjammer	1,420	8,800
1 1/8	Win 209	Longshot	32.6	Fed 12S3	1,420	8,800
1 1/8	CCI 209M	Longshot	31.5	Rem R12H	1,420	9,200
1 1/8	Rem 209P	Longshot	31.3	Rem R12H	1,420	9,200
1 1/8	Win 209	Longshot	32.1	Win AA12	1,420	9,200
1 1/8	Rem 209P	Longshot	30.8	Win AA12	1,420	9,500
1 1/8	Fed 209A	Longshot	31.0	Rem R12H	1,420	9,800
1 1/8	Fed 209A	Longshot	31.0	Win AA12	1,420	9,800
1 1/8	CCI 209M	Longshot	30.9	Win AA12	1,420	10,000
1 1/8	CCI 209M	Longshot	30.9	Fed 12S3	1,420	10,200
1 1/8	Fed 209A	Longshot	31.1	Fed 12S3	1,420	10,300
1 1/8	Rem 209P	Longshot	30.3	Fed 12S3	1,420	10,500
1 1/8	Win 209	Longshot	34.6	Rem R12L	1,475	9,100
1 1/8	Win 209	Longshot	34.1	Fed 12S3	1,475	9,500
1 1/8	Win 209	Longshot	33.6	Hor Versalite	1,475	9,500
1 1/8	CCI 209M	Longshot	33.7	Windjammer	1,475	9,600
1 1/8	Win 209	Longshot	33.2	Win AA12	1,475	10,100
1 1/8	CCI 209M	Longshot	32.9	Rem R12H	1,475	10,200
1 1/8	Rem 209P	Longshot	32.5	Rem R12H	1,475	10,200
1 1/8	Fed 209A	Longshot	32.6	Rem R12H	1,475	10,500
1 1/8	Rem 209P	Longshot	32.1	Win AA12	1,475	10,500

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) Hull #28

12 Gauge 2 3/4" Lead Shot Load Data

12 Gauge 2 3/4"

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Longshot	32.3	Win AA12	1,475	10,800
1 1/8	CCI 209M	Longshot	32.5	Win AA12	1,475	10,900
1 1/8	CCI 209M	Longshot	32.4	Fed 12S3	1,475	11,300
1 1/8	Fed 209A	Longshot	32.2	Fed 12S3	1,475	11,300
1 1/8	Rem 209P	Longshot	31.7	Fed 12S3	1,475	11,400
1 1/8	Rem 209P	Longshot	35.4	Windjammer	1,530	10,200
1 1/8	Win 209	Longshot	35.9	Rem R12L	1,530	10,200
1 1/8	Win 209	Longshot	35.7	Fed 12S3	1,530	10,300
1 1/8	Win 209	Longshot	34.9	Hor Versalite	1,530	10,300
1 1/8	CCI 209M	Longshot	35.1	Windjammer	1,530	10,500
1 1/8	Win 209	Longshot	34.4	Win AA12	1,530	11,100
1 1/8	CCI 209M	Longshot	34.2	Rem R12H	1,530	11,200
1 1/8	Rem 209P	Longshot	33.7	Rem R12H	1,530	11,300
1 1/8	Win 209	Longshot	37.1	Rem R12L	1,585	11,100
1 1/4	Fed 209A	700-X	17.0	Windjammer	1,140	11,500
1 1/4	Win 209	700-X	17.5	Windjammer	1,150	11,400
1 1/4	Win 209	SR4756	26.5	Fed 12S4	1,180	9,000
1 1/4	Rem 209P	700-X	19.0	Windjammer	1,200	11,200
1 1/4	Win 209	SR7625	25.0	Fed 12S4	1,215	10,200
1 1/4	Rem 209P	Herco	25.5	Win AA12F114	1,220	8,300
1 1/4	Win 209	Herco	25.0	Win AA12F114	1,220	8,400
1 1/4	Win 209	Herco	25.5	Hor Versalite	1,220	8,500
1 1/4	Win 209	HS-6	32.0	Fed 12C1	1,220	8,700
1 1/4	Win 209	HS-6	30.0	Win AA12F114	1,220	8,800
1 1/4	Win 209	HS-6	31.5	Rem R12H	1,220	9,000
1 1/4	CCI 209M	Herco	24.0	Win AA12F114	1,220	9,100
1 1/4	Win 209	Unique	22.5	Rem RP12	1,220	9,500
1 1/4	Win 209	SR4756	27.5	Fed 12S4	1,220	9,500
1 1/4	Win 209	Herco	25.0	CB1138-12	1,220	9,630
1 1/4	Fio 616	Herco	25.0	Win AA12F114	1,220	9,800
1 1/4	Win 209	Unique	24.0	Hor Versalite	1,220	9,800
1 1/4	CCI 209M	Unique	23.5	Win AA12F114	1,220	9,900
1 1/4	Win 209	Unique	23.5	Win AA12F114	1,220	9,900
1 1/4	Rem 209P	Unique	24.0	Win AA12F114	1,220	10,000
1 1/4	CCI 209	Universal	23.5	Win AA12F114	1,220	10,000
1 1/4	Fio 616	Unique	23.0	Win AA12F114	1,220	10,300
1 1/4	Win 209	PB	23.5	Win AA12R	1,220	10,500
1 1/4	Rem 209P	Universal	23.3	Rem SP12	1,220	10,600
1 1/4	CCI 209	Universal	22.5	Rem SP12	1,220	10,700
1 1/4	Win 209	Universal	22.8	Rem SP12	1,220	10,700
1 1/4	Win 209	Universal	23.0	Win AA12F114	1,220	10,900
1 1/4	CCI 209M	Universal	23.3	Rem SP12	1,220	11,100
1 1/4	CCI 209M	Universal	22.5	Win AA12F114	1,220	11,400
1 1/4	Fed 209A	Universal	22.4	Rem SP12	1,220	11,500
1 1/4	Fed 209A	Universal	22.6	Win AA12F114	1,220	11,500
1 1/4	Rem 209P	Universal	23.0	Win AA12F114	1,220	11,500
1 1/4	Win 209	WSF	26.0	Fed 12S4	1,220	9,000
1 1/4	Fed 209A	SR4756	26.0	Fed 12S4	1,225	10,700

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Rem 209P	SR4756	29.5	Fed 12S4	1,230	8,400
1 1/4	CCI 209	Universal	23.9	Rem SP12	1,250	11,100
1 1/4	Rem 209P	Universal	24.2	Rem SP12	1,250	11,200
1 1/4	Win 209	Universal	23.3	Rem SP12	1,250	11,400
1 1/4	Rem 209P	800-X	26.0	Fed 12S4	1,265	8,600
1 1/4	Rem 209P	SR7625	26.5	Fed 12S4	1,265	10,700
1 1/4	Rem 209P	800-X	26.0	Windjammer	1,270	8,100
1 1/4	Rem 209P	SR4756	31.5	Win AA12R	1,270	8,200
1 1/4	Rem 209P	SR7625	28.0	Win AA12R	1,270	9,100
1 1/4	Fed 209A	800-X	24.5	Windjammer	1,270	9,300
1 1/4	Win 209	800-X	25.0	Rem SP12	1,270	9,400
1 1/4	Win 209	800-X	25.0	Win AA12	1,270	9,900
1 1/4	Fed 209A	800-X	24.5	Win AA12	1,270	10,400
1 1/4	Fed 209A	800-X	24.5	Fed 12S4	1,270	10,600
1 1/4	Win 209	SR7625	26.5	Fed 12S4	1,270	11,400
1 1/4	Win 209	PB	25.0	Win AA12R	1,270	11,500
1 1/4	Fed 209A	SR4756	27.5	Fed 12S4	1,270	11,500
1 1/4	Win 209	Blue Dot	35.0	Rem SP12	1,275	8,200
1 1/4	Rem 209P	800-X	27.0	Win AA12	1,275	8,200
1 1/4	Win 209	800-S	25.5	Windjammer	1,275	9,000
1 1/4	Rem 209P	Herco	27.0	Win AA12F114	1,275	9,400
1 1/4	Rem 209P	SR4756	30.5	Rem RP12	1,275	9,600
1 1/4	Fed 209A	800-X	25.0	Rem SP12	1,275	9,800
1 1/4	Win 209	800-X	25.0	Fed 12S3	1,275	10,000
1 1/4	Win 209	Blue Dot	35.0	Win AA12F114	1,275	10,240
1 1/4	Win 209	SR7625	27.5	Rem SP12	1,275	10,300
1 1/4	Fed 209A	SR7625	26.0	Rem SP12	1,275	11,000
1 1/4	Win 209	SR7625	27.0	Win AA12	1,275	11,000
1 1/4	CCI 209	WSF	29.0	Rem RXP12	1,275	10,400
1 1/4	Win 209	WSF	27.5	Fed 12S4	1,275	10,900
1 1/4	Win 209	WSF	28.0	Win AA12F114	1,275	9,700
1 1/4	Rem 209P	800-X	27.5	Rem SP12	1,280	7,800
1 1/4	Win 209	SR4756	30.5	Win AA12R	1,280	9,400
1 1/4	Fed 209A	SR4756	28.5	Win AA12R	1,280	10,600
1 1/4	Win 209	SR4756	30.0	Rem SP12	1,285	10,000
1 1/4	Fed 209A	SR4756	28.5	Rem SP12	1,285	10,800
1 1/4	Fed 209A	SR7625	26.5	Win AA12R	1,285	10,900
1 1/4	Rem 209P	SR7625	28.0	Rem SP12	1,290	10,200
1 1/4	Fed 209A	SR7625	27.0	Rem SP12	1,310	11,500
1 1/4	Win 209	SR7625	28.0	Win AA12	1,310	11,500
1 1/4	Fed 209A	WSF	27.0	Win AA12F114	1,310	10,700
1 1/4	Rem 209P	SR7625	28.0	Fed 12S4	1,315	11,500
1 1/4	Rem 209P	800-X	27.5	Fed 12S4	1,320	9,600
1 1/4	Fed 209A	800-X	26.0	Windjammer	1,320	10,000
1 1/4	Win 209	800-X	26.5	Win AA12	1,320	10,700
1 1/4	Fed 209A	SR7625	27.5	Win AA12R	1,320	11,500
1 1/4	Rem 209P	800-X	29.0	Rem SP12	1,325	8,500
1 1/4	Rem 209P	800-X	28.5	Windjammer	1,325	9,000

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Win 209	800-X	26.5	Rem SP12	1,325	10,200
1 1/4	Rem 209P	SR7625	29.5	Win AA12R	1,325	10,300
1 1/4	Fed 209A	800-X	26.5	Rem SP12	1,325	10,700
1 1/4	Rem 209P	SR7625	29.0	Rem SP12	1,325	10,900
1 1/4	Win 209	SR7625	29.0	Rem SP12	1,325	11,400
1 1/4	Fed 209A	800-X	26.0	Win AA12	1,325	11,400
1 1/4	Fed 209A	SR4756	29.5	Rem SP12	1,325	11,500
1 1/4	Fed 209A	800-X	26.0	Fed 12S4	1,325	11,500
1 1/4	Win 209	Longshot	30.0	Rem SP12	1,330	8,300
1 1/4	CCI 209M	Longshot	29.3	Rem SP12	1,330	8,900
1 1/4	Rem 209P	SR4756	33.0	Win AA12R	1,330	9,000
1 1/4	Fed 209A	Longshot	28.6	Rem SP12	1,330	9,400
1 1/4	Rem 209P	Longshot	29.1	Rem SP12	1,330	9,400
1 1/4	Win 209	Longshot	29.8	Fed 12S4	1,330	9,400
1 1/4	Win 209	Longshot	28.7	Win AA12F114	1,330	9,800
1 1/4	Win 209	800-X	27.0	Windjammer	1,330	10,000
1 1/4	Win 209	Blue Dot	38.0	Rem RP12	1,330	10,200
1 1/4	CCI 209M	Longshot	29.3	Win AA12F114	1,330	10,200
1 1/4	Win 209	Blue Dot	37.5	Win AA12R	1,330	10,225
1 1/4	Win 209	Blue Dot	37.0	Rem SP12	1,330	10,300
1 1/4	Win 209	HS-6	35.0	Fed 12C1	1,330	10,400
1 1/4	Win 209	HS-6	33.0	Win AA12F114	1,330	10,500
1 1/4	Rem 209P	Longshot	27.9	Win AA12F114	1,330	10,500
1 1/4	Rem 209P	SR4756	31.5	Rem RP12	1,330	10,600
1 1/4	Win 209	HS-6	35.0	Rem R12H	1,330	10,600
1 1/4	Fed 209A	Longshot	27.7	Win AA12F114	1,330	10,800
1 1/4	Win 209	800-X	26.5	Fed 12S3	1,330	10,900
1 1/4	CCI 209M	Longshot	28.5	Fed 12S4	1,330	10,900
1 1/4	Rem 209P	Longshot	28.5	Fed 12S4	1,330	11,000
1 1/4	Fed 209A	SR4756	30.0	Win AA12R	1,330	11,500
1 1/4	Win 209	WSF	29.5	Win AA12F114	1,330	10,600
1 1/4	CCI 209	WSF	28.0	Rem SP12	1,330	9,800
1 1/4	Rem 209P	800-X	28.5	Win AA12	1,335	9,600
1 1/4	Win 209	SR4756	32.0	Win AA12R	1,335	10,300
1 1/4	Win 209	SR4756	31.5	Rem SP12	1,340	11,000
1 1/4	Win 209	Blue Dot	37.5	CB1138-12	1,375	10,560
1 1/4	Win 209	Longshot	31.5	Rem SP12	1,385	9,300
1 1/4	Rem 209P	Longshot	30.9	Rem SP12	1,385	9,800
1 1/4	CCI 209M	Longshot	30.7	Rem SP12	1,385	9,900
1 1/4	Win 209	Longshot	31.1	Fed 12S4	1,385	10,500
1 1/4	Fed 209A	Longshot	30.0	Rem SP12	1,385	10,600
1 1/4	Win 209	Longshot	30.4	Win AA12F114	1,385	10,800
1 1/4	CCI 209M	Longshot	30.1	Win AA12F114	1,385	11,300
1 1/4	Rem 209P	Longshot	29.5	Win AA12F114	1,385	11,300
1 1/4	Win 209	Longshot	33.0	Rem SP12	1,440	10,400
1 1/4	CCI 209M	Longshot	32.1	Rem SP12	1,440	10,800
1 1/4	Rem 209P	Longshot	32.2	Rem SP12	1,440	11,200
1 3/8	Fed 209A	PB	19.5	Rem RP12	1,090	11,100

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	PB	20.0	Win AA12R	1,105	11,200
1 3/8	Win 209	PB	20.5	Rem SP12	1,115	11,100
1 3/8	Win 209	PB	21.0	Win AA12R	1,125	10,900
1 3/8	Fed 209A	SR7625	22.5	Win AA12R	1,130	11,000
1 3/8	Fed 209A	SR7625	23.0	Rem SP12	1,130	11,100
1 3/8	Win 209	SR7625	24.0	Rem SP12	1,150	10,900
1 3/8	Rem 209P	PB	22.0	Rem RP12	1,150	11,200
1 3/8	Rem 209P	SR7625	24.5	Rem SP12	1,155	10,900
1 3/8	Win 209	SR7625	24.0	Win AA12R	1,155	11,200
1 3/8	Rem 209P	PB	22.5	Win AA12R	1,165	11,100
1 3/8	Fed 209A	800-X	22.5	Fed 12S4	1,180	11,100
1 3/8	Win 209	Longshot	24.5	Rem RP12	1,185	8,500
1 3/8	Win 209	Longshot	24.6	Win AA12R	1,185	8,700
1 3/8	Rem 209P	Longshot	24.3	Win AA12R	1,185	8,800
1 3/8	Rem 209P	Longshot	23.9	BP Ultra Short Euro	1,185	8,900
1 3/8	Win 209	Longshot	24.4	BP Ultra Short Euro	1,185	9,000
1 3/8	CCI 209M	Longshot	23.7	BP Ultra Short Euro	1,185	9,300
1 3/8	Fed 209A	Longshot	24.0	BP Ultra Short Euro	1,185	9,500
1 3/8	Fed 209A	Longshot	23.6	Rem RP12	1,185	9,500
1 3/8	Rem 209P	Longshot	23.5	Rem RP12	1,185	9,500
1 3/8	CCI 209M	Longshot	23.5	Win AA12R	1,185	9,700
1 3/8	Fed 209A	Longshot	23.5	Win AA12R	1,185	10,100
1 3/8	CCI 209M	Longshot	23.1	Rem RP12	1,185	10,200
1 3/8	Fed 209A	SR4756	27.0	Win AA12R	1,185	10,900
1 3/8	Rem 209P	SR7625	26.0	Win AA12R	1,190	11,000
1 3/8	Win 209	Blue Dot	33.0	Rem RP12	1,200	10,355
1 3/8	Win 209	800-X	23.5	Fed 12S4	1,200	11,100
1 3/8	Fed 209A	SR4756	27.5	Rem SP12	1,210	11,200
1 3/8	Win 209	SR4756	28.5	Rem SP12	1,230	11,000
1 3/8	Win 209	Longshot	26.4	Rem RP12	1,240	9,600
1 3/8	Win 209	Longshot	26.4	Win AA12R	1,240	9,800
1 3/8	Rem 209P	Longshot	25.6	Rem RP12	1,240	10,200
1 3/8	Rem 209P	Longshot	25.7	Win AA12R	1,240	10,200
1 3/8	Win 209	Blue Dot	34.5	Rem SP12	1,240	10,290
1 3/8	Rem 209P	Longshot	25.6	BP Ultra Short Euro	1,240	10,300
1 3/8	Win 209	Longshot	26.1	BP Ultra Short Euro	1,240	10,300
1 3/8	CCI 209M	Longshot	25.1	BP Ultra Short Euro	1,240	10,600
1 3/8	Fed 209A	Longshot	25.4	BP Ultra Short Euro	1,240	10,600
1 3/8	Fed 209A	Longshot	25.3	Rem RP12	1,240	10,700
1 3/8	CCI 209M	Longshot	24.8	Rem RP12	1,240	10,900
1 3/8	Fed 209A	Longshot	25.2	Win AA12R	1,240	10,900
1 3/8	CCI 209M	Longshot	25.2	Win AA12R	1,240	11,000
1 3/8	Fed 209A	800-X	25.0	Rem SP12	1,245	11,100
1 3/8	Fed 209A	800-X	25.5	Win AA12R	1,260	11,000
1 3/8	Rem 209P	SR4756	31.0	Rem RP12	1,265	10,900
1 3/8	Win 209	SR4756	30.0	Win AA12R	1,265	11,200
1 3/8	Win 209	800-X	26.0	Rem SP12	1,270	11,100
1 3/8	Win 209	800-X	26.0	Win AA12R	1,275	11,000

Winchester Compression Formed Plastic AA & AA-Type Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Rem 209P	800-X	27.0	Fed 12S4	1,280	11,100
1 3/8	Win 209	HS-7	35.5	Win AA12R	1,285	10,300
1 3/8	Rem 209P	SR4756	32.0	Win AA12R	1,290	10,600
1 3/8	Win 209	Longshot	28.3	Rem RP12	1,295	10,800
1 3/8	Win 209	Longshot	28.1	Win AA12R	1,295	10,900
1 3/8	Rem 209P	Longshot	27.5	Rem RP12	1,295	11,100
1 3/8	Rem 209P	Longshot	27.0	Win AA12R	1,295	11,500
1 3/8	Win 209	Longshot	27.8	BP Ultra Short Euro	1,295	11,500
1 3/8	Rem 209P	800-X	29.0	Win AA12R	1,320	10,100
1 3/8	Rem 209P	800-X	30.0	Rem RP12	1,345	11,200
1 1/2	Win 209	Blue Dot	31.0	Win AA12R	1,150	10,375
1 1/2	Win 209	Blue Dot	30.5	Rem RP12	1,150	10,800
1 1/2	Win 209	Longshot	27.0	Rem RP12	1,205	9,900
1 1/2	Win 209	Blue Dot	33.7	CB1138-12	1,205	10,060
1 1/2	Win 209	Longshot	26.4	Win AA12R	1,205	10,100
1 1/2	Rem 209P	Longshot	26.0	Win AA12R	1,205	10,800
1 1/2	Fed 209A	Longshot	25.0	Win AA12R	1,205	11,000
1 1/2	Fed 209A	Longshot	25.5	Rem RP12	1,205	11,100
1 1/2	Rem 209P	Longshot	25.5	Rem RP12	1,205	11,100
1 1/2	CCI 209M	Longshot	25.0	Win AA12R	1,205	11,300
1 1/2	CCI 209M	Longshot	25.9	Rem SP12	1,205	11,400
1 1/2	Win 209	Longshot	28.0	Rem RP12	1,260	11,400
1 1/2	Win 209	Longshot	28.0	Win AA12R	1,260	11,500
24 Grams	Rem 209P	SR7625	22.5	Fed 12S0	1,140	4,000
24 Grams	Rem 209P	700-X	15.0	CB2100-12	1,140	4,800
24 Grams	Rem 209P	PB	18.5	Win AA12SL	1,140	4,800
24 Grams	Rem 209P	700-X	15.0*	Win AA12SL	1,140	5,300
24 Grams	Fed 209A	700-X	14.5*	CB1100-12	1,140	5,700
24 Grams	Fed 209A	700-X	14.5*	Rem TGT12	1,140	6,000
24 Grams	Rem 209P	SR7625	23.5	CB1100-12	1,145	3,000
24 Grams	Rem 209P	700-X	16.0*	CB1100-12	1,145	4,100
24 Grams	Fed 209A	PB	18.0*	Rem Fig 8	1,145	5,200
24 Grams	Win 209	700-X	15.5*	Fed 12S0	1,145	5,400
24 Grams	Fed 209A	700-X	14.5*	Win AA12SL	1,145	6,400
24 Grams	Rem 209P	SR7625	22.5	Win AA12SL	1,150	3,700
24 Grams	Rem 209P	SR7625	23.0*	Rem Fig 8	1,150	3,700
24 Grams	Fed 209A	SR7625	22.0*	Rem Fig 8	1,150	4,200
24 Grams	Fed 209A	SR7625	22.0	Fed 12S0	1,150	4,400
24 Grams	Rem 209P	PB	19.5*	Rem Fig 8	1,150	4,500
24 Grams	Fed 209A	SR7625	21.0	Win AA12SL	1,150	4,600
24 Grams	Rem 209P	700-X	15.5*	Rem TGT12	1,150	5,000
24 Grams	Rem 209P	700-X	15.0	Fed 12S0	1,150	5,000
24 Grams	Win 209	700-X	15.5	Win AA12SL	1,150	5,100
24 Grams	Win 209	700-X	15.5*	Rem TGT12	1,150	5,200
24 Grams	Fed 209A	PB	18.5	Fed 12S0	1,150	5,500
24 Grams	Fed 209A	700-X	15.0	Fed 12S0	1,150	6,400
24 Grams	Fed 209A	SR7625	22.5	CB1100-12	1,155	3,700

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
24 Grams	Rem 209P	PB	19.5	CB1100-12	1,155	4,200
24 Grams	Win 209	700-X	16.0*	CB1100-12	1,155	4,900
24 Grams	Fed 209A	PB	18.5	CB1100-12	1,155	4,900
24 Grams	Rem 209P	PB	19.5	Fed 12S0	1,155	4,900
24 Grams	Win 209	700-X	16.0*	CB1100-12	1,160	5,300
24 Grams	Fed 209A	PB	18.0	Win AA12SL	1,160	5,800
24 Grams	Fed 209A	700-X	15.0	CB2100-12	1,160	5,900
24 Grams	Rem 209P	SR7625	24.0	Fed 12S0	1,190	4,400
24 Grams	Rem 209P	PB	20.5*	Rem Fig 8	1,190	5,000
24 Grams	Rem 209P	700-X	16.5*	Rem TGT12	1,190	5,500
24 Grams	Rem 209P	700-X	16.5	Fed 12S0	1,190	5,600
24 Grams	Fed 209A	PB	19.5	Fed 12S0	1,190	6,000
24 Grams	Fed 209A	700-X	15.5*	CB1100-12	1,190	6,400
24 Grams	Fed 209A	SR7625	23.5	CB1100-12	1,195	4,000
24 Grams	Rem 209P	SR7625	24.0*	Rem Fig 8	1,195	4,200
24 Grams	Rem 209P	PB	20.5	CB1100-12	1,195	4,500
24 Grams	Fed 209A	SR7625	23.0*	Rem Fig 8	1,195	4,700
24 Grams	Fed 209A	SR7625	23.0	Fed 12S0	1,195	4,800
24 Grams	Rem 209P	PB	20.0	Win AA12SL	1,195	5,400
24 Grams	Win 209	700-X	16.5*	Rem TGT12	1,195	5,800
24 Grams	Win 209	700-X	16.5*	Fed 12S0	1,195	6,100
24 Grams	Fed 209A	PB	19.0	Win AA12SL	1,195	6,200
24 Grams	Fed 209A	700-X	15.5*	Win AA12SL	1,195	7,000
24 Grams	Rem 209P	700-X	17.5*	CB1100-12	1,200	4,800
24 Grams	Fed 209A	SR7625	22.5	Win AA12SL	1,200	5,000
24 Grams	Rem 209P	700-X	16.5	CB2100-12	1,200	5,200
24 Grams	Rem 209P	PB	20.5	Fed 12S0	1,200	5,400
24 Grams	Win 209	700-X	16.5	Win AA12SL	1,200	5,700
24 Grams	Fed 209A	PB	19.5*	Rem Fig 8	1,200	5,800
24 Grams	Rem 209P	700-X	16.5*	Win AA12SL	1,200	6,000
24 Grams	Fed 209A	700-X	16.0	Fed 12S0	1,200	7,100
24 Grams	Rem 209P	SR7625	25.0	CB1100-12	1,205	3,500
24 Grams	Fed 209A	PB	20.0	CB1100-12	1,205	5,300
24 Grams	Rem 209P	SR7625	24.0	Win AA12SL	1,210	4,400
24 Grams	Win 209	700-X	17.0*	CB1100-12	1,210	5,500
24 Grams	Win 209	700-X	17.0*	CB1100-12	1,210	5,900
24 Grams	Fed 209A	700-X	16.0	CB2100-12	1,210	6,700
24 Grams	Fed 209A	700-X	16.0*	Rem TGT12	1,210	7,000
24 Grams	Fed 209A	PB	21.0	CB1100-12	1,245	5,600
24 Grams	Win 209	700-X	17.5*	Rem TGT12	1,245	6,400
24 Grams	Fed 209A	SR7625	25.0	CB1100-12	1,250	4,600
24 Grams	Rem 209P	SR7625	25.0	Win AA12SL	1,250	4,800
24 Grams	Rem 209P	PB	22.0	CB1100-12	1,250	5,000
24 Grams	Rem 209P	SR7625	25.5	Fed 12S0	1,250	5,200
24 Grams	Fed 209A	SR7625	24.0	Win AA12SL	1,250	5,400
24 Grams	Rem 209P	700-X	18.0*	Rem TGT12	1,250	6,100
24 Grams	Rem 209P	700-X	18.0	Fed 12S0	1,250	6,300

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

12

12 Gauge 2 ¾"
Lead Shot Load Data

Winchester Compression Formed Plastic AA & AA-Type Shell

(Continued) **Hull #28**

12 Gauge 2 ¾"

Hull I.D. Page 95
Reference Notes Page 113

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
24 Grams	Win 209	700-X	17.5*	Win AA12SL	1,250	6,400
24 Grams	Fed 209A	PB	21.0	Fed 12S0	1,250	6,600
24 Grams	Win 209	700-X	17.5*	Fed 12S0	1,250	6,700
24 Grams	Fed 209A	700-X	17.0	Fed 12S0	1,250	7,900
24 Grams	Rem 209P	SR7625	25.5*	Rem Fig 8	1,255	4,800
24 Grams	Fed 209A	SR7625	24.5*	Rem Fig 8	1,255	5,300
24 Grams	Fed 209A	SR7625	24.5	Fed 12S0	1,255	5,400
24 Grams	Rem 209P	700-X	18.0	CB2100-12	1,255	5,600
24 Grams	Rem 209P	PB	22.0*	Rem Fig 8	1,255	5,800
24 Grams	Rem 209P	PB	21.5	Win AA12SL	1,255	6,100
24 Grams	Rem 209P	PB	22.0	Fed 12S0	1,255	6,100
24 Grams	Fed 209A	PB	21.0*	Rem Fig 8	1,255	6,500
24 Grams	Fed 209A	PB	20.5	Win AA12SL	1,255	6,900
24 Grams	Fed 209A	700-X	17.0*	Rem TGT12	1,255	7,800
24 Grams	Win 209	700-X	18.0*	CB1100-12	1,260	6,200
24 Grams	Win 209	700-X	18.0*	CB2100-12	1,260	6,500
24 Grams	Fed 209A	700-X	17.0*	CB1100-12	1,260	7,400
24 Grams	Fed 209A	700-X	17.0	CB2100-12	1,260	7,500
24 Grams	Fed 209A	700-X	17.0*	Win AA12SL	1,260	8,100
24 Grams	Rem 209P	SR7625	26.5	CB1100-12	1,265	4,100
24 Grams	Rem 209P	700-X	19.0*	CB1100-12	1,265	5,500
24 Grams	Rem 209P	700-X	18.0*	Win AA12SL	1,265	6,800
24 Grams	Rem 209P	SR7625	27.0	Win AA12SL	1,320	5,500
24 Grams	Rem 209P	SR7625	27.0	Fed 12S0	1,320	6,000
24 Grams	Fed 209A	SR7625	26.0	Fed 12S0	1,320	6,400
24 Grams	Fed 209A	PB	23.0	CB1100-12	1,320	6,600
24 Grams	Rem 209P	PB	23.5*	Rem Fig 8	1,320	6,700
24 Grams	Win 209	700-X	19.0*	Win AA12SL	1,320	7,500
24 Grams	Rem 209P	700-X	19.5	Fed 12S0	1,320	7,600
24 Grams	Fed 209A	700-X	18.5*	Rem TGT12	1,320	8,600
24 Grams	Fed 209A	700-X	18.5*	Win AA12SL	1,320	9,100
24 Grams	Rem 209P	700-X	20.0	CB2100-12	1,325	6,300
24 Grams	Rem 209P	700-X	20.5*	Rem TGT12	1,325	6,800
24 Grams	Rem 209P	PB	24.0	Fed 12S0	1,325	6,800
24 Grams	Fed 209A	PB	23.0*	Rem Fig 8	1,325	7,200
24 Grams	Fed 209A	700-X	18.5*	CB1100-12	1,325	8,300
24 Grams	Fed 209A	700-X	18.5	CB2100-12	1,325	8,600
24 Grams	Fed 209A	700-X	18.5	Fed 12S0	1,325	9,000
24 Grams	Rem 209P	SR7625	28.0	CB1100-12	1,330	4,700
24 Grams	Rem 209P	PB	24.5	CB1100-12	1,330	5,700
24 Grams	Win 209	SR7625	27.0	Win AA12SL	1,330	6,000
24 Grams	Fed 209A	SR7625	26.5*	Rem Fig 8	1,330	6,200
24 Grams	Fed 209A	SR7625	26.0	Win AA12SL	1,330	6,400
24 Grams	Rem 209P	700-X	19.5*	Win AA12SL	1,330	7,600
24 Grams	Win 209	700-X	19.5*	Fed 12S0	1,330	7,800
24 Grams	Fed 209A	PB	22.5	Win AA12SL	1,330	7,800
24 Grams	Fed 209A	PB	23.0	Fed 12S0	1,330	7,900

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)

Hull #28 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
24 Grams	Fed 209A	SR7625	27.0	CB1100-12	1,335	5,500
24 Grams	Rem 209P	SR7625	27.5*	Rem Fig 8	1,335	5,700
24 Grams	Rem 209P	700-X	20.5*	CB1100-12	1,335	6,400
24 Grams	Rem 209P	PB	23.5	Win AA12SL	1,335	7,200
24 Grams	Win 209	700-X	19.5*	CB1100-12	1,335	7,300
24 Grams	Win 209	700-X	19.5*	CB2100-12	1,335	7,400
24 Grams	Win 209	700-X	19.5*	Rem TGT12	1,335	7,800
24 Grams	Win 209	American Select	21.0	Purple PC	1,345	8,100
24 Grams	Win 209	American Select	20.5	Rem TGT12	1,345	8,600
24 Grams	Win 209	American Select	20.5	CB1100-12	1,345	8,700
24 Grams	Win 209	Red Dot	20.0	Purple PC	1,345	9,000
24 Grams	Win 209	American Select	20.5	Fed 12SO	1,345	9,100
24 Grams	Win 209	Red Dot	20.0	CB1100-12	1,345	9,600
24 Grams	Win 209	Red Dot	20.0	Rem TGT12	1,345	9,600
24 Grams	Win 209	American Select	20.5	Win AA12L	1,345	9,700
24 Grams	Win 209	Red Dot	20.0	Fed 12SO	1,345	10,100
24 Grams	Win 209	Red Dot	20.0	Win AA12L	1,345	10,200
28 Grams	Win 209	Unique	26.5	Purple PC	1,345	8,700
28 Grams	Win 209	Green Dot	23.0	Purple PC	1,345	9,500
28 Grams	Win 209	Unique	25.5	Fed 12S3	1,345	9,500
28 Grams	Win 209	Unique	25.0	Rem Fig 8	1,345	9,600
28 Grams	Win 209	Unique	25.5	Win AA12SL	1,345	10,200
28 Grams	Win 209	Green Dot	22.5	Rem Fig 8	1,345	10,600

*Insert One 20 Ga 0.135" Card in Bottom of Shotcup

24 Gram Loads = 370.4 Grains (7/8 oz. Load = 382.8 Grains)
28 Gram Loads = 432.1 Grains (1 oz. Load = 437.5 Grains)

16

16 Gauge 2 3/4" Lead Shot Load Data

Federal Plastic Hi-Power Shells (With Rolled Paper Basewad)

Hull #30

16 Gauge 2 3/4"

Hull I.D. Page 96
Reference Notes Page 114

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	Universal	21.0	BPG/BP	1,165	7,400
1	CCI 209M	Universal	21.5	Activ G-28	1,165	7,500
1	Win 209	Universal	20.7	Win AA16	1,165	7,600
1	Fed 209A	700-X	15.5	Win AA16	1,175	11,000
1	Win 209	700-X	16.0	Win AA16	1,195	11,200
1	Rem 209P	SR4756	27.0	Rem SP16	1,210	6,400
1	Win 209	SR4756	25.0	Win AA16	1,210	7,200
1	Rem 209P	700-X	16.5	Win AA16	1,210	11,200
1	Fed 209A	Herco	21.5	Win AA16	1,220	8,100
1	CCI 209M	Universal	22.5	Activ G-28	1,220	8,200
1	Fed 209A	Universal	22.0	BPG/BP	1,220	8,200
1	Win 209	Universal	22.3	Win AA16	1,220	8,200
1	Fed 209A	Unique	21.0	Win AA16	1,220	8,400
1	Fed 209A	Green Dot	19.0	Win AA16	1,220	9,800
1	Fed 209A	SR4756	25.0	Win AA16	1,240	8,500
1	Fed 209A	Herco	23.5	Win AA16	1,275	8,700
1	Fed 209A	Unique	23.0	Win AA16	1,275	8,800
1	Win 209	Universal	23.5	Win AA16	1,275	8,900
1	CCI 209M	Universal	24.2	Activ G-28	1,275	9,000
1	Fed 209A	Universal	23.5	BPG/BP	1,275	9,200
1	Fed 209A	PB	21.5	Win AA16	1,280	11,000
1	Win 209	SR7625	25.0	Win AA16	1,330	9,900
1	Win 209	PB	23.5	Win AA16	1,330	11,200
1	Fed 209A	SR7625	24.5	Win AA16	1,340	11,000
1	Rem 209P	800-X	25.0	Rem SP16	1,350	8,300
1	Rem 209P	PB	25.0	Rem SP16	1,360	11,200
1	Rem 209P	SR7625	26.5	Rem SP16	1,375	10,400
1	Fed 209A	800-X	24.0	Rem SP16	1,385	10,400
1	Win 209	800-X	24.5	Win AA16	1,390	10,200
1 1/8	Rem 209P	SR4756	23.0	Rem SP16	1,045	6,200
1 1/8	Win 209	SR4756	23.0	Rem SP16	1,120	7,700
1 1/8	Fed 209A	PB	19.0	Rem SP16	1,145	10,800
1 1/8	Fed 209A	SR4756	23.0	Rem SP16	1,150	8,400
1 1/8	Fed 209A	Unique	21.0	Win AA16	1,185	8,700
1 1/8	Fed 209A	Unique	21.5	Rem SP16	1,185	8,900
1 1/8	Fed 209A	Herco	22.0	Rem SP16	1,185	9,100
1 1/8	Fed 209A	Herco	22.0	Win AA16	1,185	9,100
1 1/8	Fed 209A	Green Dot	18.5	Win AA16	1,185	10,200
1 1/8	Fed 209A	Green Dot	19.0	Rem SP16	1,185	10,600
1 1/8	Win 209	PB	20.5	Rem SP16	1,195	11,000
1 1/8	Rem 209P	SR7625	23.0	Rem SP16	1,200	9,000
1 1/8	Rem 209P	PB	21.0	Rem SP16	1,205	10,500
1 1/8	Fed 209A	SR7625	22.0	Rem SP16	1,220	11,000
1 1/8	Fed 209A	Unique	22.5	Rem SP16	1,240	9,600
1 1/8	Fed 209A	Herco	23.5	Rem SP16	1,240	10,100
1 1/8	Fed 209A	Herco	24.0	Win AA16	1,240	10,200
1 1/8	Fed 209A	Unique	22.0	Win AA16	1,240	10,200
1 1/8	Win 209	SR7625	23.0	Rem SP16	1,240	10,800

Hull #30 (Continued)

16 Gauge 2 ¾"

Hull I.D. Page 96

Reference Notes Page 114

Federal Plastic Hi-Power Shells (With Rolled Paper Basewad)

16

16 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	800-X	22.5	Rem SP16	1,285	10,800
1 1/8	Fed 209A	800-X	22.5	Rem SP16	1,285	11,000
1 1/8	Fed 209A	Blue Dot	32.0	Rem SP16	1,295	8,600
1 1/8	Fed 209A	Herco	24.5	Rem SP16	1,295	10,300
1 1/8	Rem 209P	800-X	24.5	Rem SP16	1,310	10,100
1 1/4	Fed 209A	Blue Dot	30.5	Rem SP16	1,260	10,200

Hull #31

16 Gauge 2 ¾"

Hull I.D. Page 96

Reference Notes Page 114

Fiocchi Plastic Shell (With Plastic Basewad)

16

16 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fio 616	Unique	19.0	Win AA16	1,165	8,100
1	Fio 616	Green Dot	17.5	Win AA16	1,165	9,400
1	Fio 616	Red Dot	15.5	Win AA16	1,165	10,400
1	Fio 616	Unique	20.5	Win AA16	1,220	8,800
1	Fio 616	Herco	21.0	Win AA16	1,220	8,900
1	Fio 616	Green Dot	18.0	Win AA16	1,220	10,500
1	Fio 616	Herco	22.0	Win AA16	1,275	9,600
1	Fio 616	Unique	21.0	Win AA16	1,275	9,900
1 1/8	Fio 616	Unique	20.5	Rem SP16	1,185	9,900
1 1/8	Fio 616	Herco	21.0	Rem SP16	1,185	10,200
1 1/8	Fio 616	Unique	19.5	Win AA16	1,185	10,600
1 1/8	Fio 616	Blue Dot	31.0	Rem SP16	1,240	8,900
1 1/8	Fio 616	Herco	23.5	Rem SP16	1,240	10,700
1 1/8	Fio 616	Blue Dot	32.5	Rem SP16	1,295	9,200

16

16 Gauge 2 ¾"
Lead Shot Load Data

Remington-Peters SP Plastic Shells (With Plastic Basewad)

Hull #32

16 Gauge 2 ¾"

Hull I.D. Page 96
Reference Notes Page 114

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Rem 209P	Green Dot	16.5	Win AA16	1,165	10,200
1	Rem 209P	Herco	21.0	Win AA16	1,220	9,700
1	Rem 209P	Herco	22.0	Win AA16	1,275	9,600
1	Rem 209P	Unique	19.0	Win AA16	1,165	8,600
1	Rem 209P	Unique	20.0	Win AA16	1,220	9,400
1	Rem 209P	Unique	21.0	Win AA16	1,275	10,200
1	Fed 209A	700-X	13.0	Win AA16	1,095	11,000
1	Rem 209P	700-X	14.5	Win AA16	1,150	11,000
1	Win 209	700-X	13.5	Win AA16	1,120	11,200
1	Fed 209A	PB	17.5	Rem SP16	1,180	11,200
1	Rem 209P	PB	20.0	Rem SP16	1,240	10,700
1	Win 209	PB	19.0	Win AA16	1,210	11,000
1	Fed 209A	SR7625	21.0	Rem SP16	1,250	11,200
1	Rem 209P	SR7625	23.5	Rem SP16	1,310	11,200
1	Win 209	SR7625	22.5	Win AA16	1,285	11,200
1	Fed 209A	800-X	20.5	Rem SP16	1,295	11,200
1	Rem 209P	800-X	24.0	Rem SP16	1,390	11,100
1	Win 209	800-X	21.5	Win AA16	1,315	11,000
1	Fed 209A	SR4756	23.5	Rem SP16	1,280	11,000
1	Rem 209P	SR4756	29.0	Rem SP16	1,380	10,100
1	Win 209	SR4756	22.0	Win AA16	1,160	8,200
1	CCI 209M	Universal	19.5	BPG/BP	1,165	8,400
1	CCI 209M	Universal	20.5	BPG/BP	1,220	9,600
1	CCI 209M	Universal	21.5	BPG/BP	1,275	10,300
1	Win 209	Universal	18.5	Rem SP16	1,165	8,800
1	Win 209	Universal	19.8	Rem SP16	1,220	9,900
1	Win 209	Universal	20.5	Rem SP16	1,275	10,400
1	Win 209	Universal	18.5	Win AA16	1,165	9,000
1	Win 209	Universal	19.5	Win AA16	1,220	9,900
1	Win 209	Universal	20.5	Win AA16	1,275	10,400
1 1/8	Rem 209P	Blue Dot	27.0	Rem SP16	1,240	9,900
1 1/8	Rem 209P	Herco	21.0	Win AA16	1,185	10,600
1 1/8	Rem 209P	Unique	20.0	Win AA16	1,185	10,300
1 1/8	Fed 209A	PB	16.5	Rem SP16	1,090	11,000
1 1/8	Rem 209P	PB	18.5	Rem SP16	1,140	11,000
1 1/8	Win 209	PB	18.0	Rem SP16	1,120	11,100
1 1/8	Fed 209A	SR7625	19.5	Rem SP16	1,140	11,000
1 1/8	Rem 209P	SR7625	22.0	Rem SP16	1,210	11,000
1 1/8	Win 209	SR7625	21.0	Rem SP16	1,180	10,900
1 1/8	Fed 209A	800-X	19.0	Rem SP16	1,195	10,800
1 1/8	Rem 209P	800-X	21.0	Rem SP16	1,240	10,800
1 1/8	Win 209	800-X	19.5	Rem SP16	1,220	10,900
1 1/8	Fed 209A	SR4756	22.0	Rem SP16	1,185	10,900
1 1/8	Rem 209P	SR4756	24.0	Rem SP16	1,175	9,500
1 1/8	Win 209	SR4756	23.5	Rem SP16	1,220	11,000

Hull #33

16 Gauge 2 ¾"

Hull I.D. Page 96

Reference Notes Page 114

Winchester Compression Formed AA-Type Shell

16

16 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Unique	19.0	Win AA16	1,165	9,200
1	Win 209	Herco	20.0	Win AA16	1,220	10,200
1	Win 209	Unique	19.5	Win AA16	1,220	10,500
1	Win 209	Blue Dot	29.0	Rem SP16	1,275	9,300
1	CCI 209	HS-6	23.5	Win AA16	1,165	8,200
1	Win 209	HS-7	25.0	Win AA16	1,165	8,400
1	Win 209	HS-6	23.0	Win AA16	1,165	8,500
1	Win 209	Universal	19.5	BPG/BP	1,165	9,100
1	Win 209	Universal	19.0	Win AA16	1,165	9,200
1	CCI 209	HS-6	24.5	Win AA16	1,220	8,800
1	CCI 209	HS-7	26.5	Win AA16	1,220	9,100
1	Win 209	HS-6	24.0	Win AA16	1,220	9,300
1	Win 209	Universal	20.0	BPG/BP	1,220	10,000
1	Win 209	Universal	20.0	Win AA16	1,220	10,300
1	Win 209	Universal	21.0	BPG/BP	1,275	10,700
1	Win 209	Universal	20.7	Win AA16	1,275	11,000
1 1/8	Win 209	HS-6	26.5	Rem SP16	1,185	8,600
1 1/8	Win 209	Blue Dot	27.0	Rem SP16	1,185	10,000
1 1/8	Win 209	HS-7	26.0	Win AA16	1,185	10,100
1 1/8	Win 209	HS-6	24.5	Win AA16	1,185	10,600
1 1/8	Win 209	HS-6	27.5	Rem SP16	1,240	9,400
1 1/8	Win 209	HS-7	27.0	Win AA16	1,240	10,700

Hull #34

20 Gauge 3"

Hull I.D. Page 97

Reference Notes Page 115

Federal Hi-Power Plastic Shell (With Paper Basewad)

20

20 Gauge 3"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	PB	17.0	Fed 20S1	1,080	11,300
1 1/8	Win 209	PB	17.0	Win AA20	1,090	11,400
1 1/8	Fed 209A	PB	17.5	Win AA20	1,110	11,600
1 1/8	Win 209	PB	18.0	Rem RXP20	1,120	11,400
1 1/8	Fed 209A	PB	18.0	Rem RXP20	1,130	11,500
1 1/8	Rem 209P	PB	19.0	Fed 20S1	1,140	11,600
1 1/8	Win 209	PB	19.0	Fed 20S1	1,160	11,700
1 1/8	Fed 209A	SR4756	20.5	Win AA20	1,160	11,700
1 1/8	Fed 209A	SR4756	21.0	Fed 20S1	1,165	11,400
1 1/8	Win 209	Longshot	20.6	Fed 20S1	1,175	8,200
1 1/8	CCI 209M	Longshot	19.2	Win AA20	1,175	8,300
1 1/8	Win 209	Longshot	20.3	Rem RXP20	1,175	8,500
1 1/8	Rem 209P	Longshot	19.5	Rem RXP20	1,175	8,600
1 1/8	Win 209	Longshot	19.6	Win AA20	1,175	8,800
1 1/8	CCI 209M	Longshot	19.6	Fed 20S1	1,175	9,000
1 1/8	CCI 209M	Longshot	19.4	Rem RXP20	1,175	9,000

12

20 Gauge 3"
Lead Shot Load Data

Federal Hi-Power Plastic Shell (With Paper Basewad)

(Continued) **Hull #34**

20 Gauge 3"

Hull I.D. Page 97
Reference Notes Page 115

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Longshot	19.6	Rem RXP20	1,175	9,000
1 1/8	Rem 209P	Longshot	19.4	Fed 20S1	1,175	9,000
1 1/8	Rem 209P	Longshot	19.4	Win AA20	1,175	9,100
1 1/8	Fed 209A	Longshot	19.3	Fed 20S1	1,175	9,300
1 1/8	Fed 209A	Longshot	19.6	Win AA20	1,175	9,700
1 1/8	Rem 209P	PB	20.0	Rem RXP20	1,175	11,400
1 1/8	Win 209	SR4756	21.5	Fed 20S1	1,185	11,300
1 1/8	Fed 209A	SR4756	21.5	Rem SP20	1,190	11,700
1 1/8	Win 209	800-X	19.0	Win AA20	1,200	11,400
1 1/8	Fed 209A	800-X	19.0	Fed 20S1	1,200	11,600
1 1/8	Fed 209A	800-X	19.5	Win AA20	1,210	11,500
1 1/8	Win 209	800-X	19.5	Rem SP20	1,210	11,500
1 1/8	Win 209	800-X	19.5	Fed 20S1	1,210	11,600
1 1/8	Fed 209A	800-X	19.5	Rem RXP20	1,215	11,500
1 1/8	Win 209	SR4756	23.0	Rem SP20	1,215	11,500
1 1/8	Win 209	SR4756	22.5	Win AA20	1,215	11,700
1 1/8	Win 209	Longshot	21.7	Fed 20S1	1,230	9,500
1 1/8	Win 209	Longshot	21.7	Rem RXP20	1,230	9,600
1 1/8	Rem 209P	Longshot	21.1	Rem RXP20	1,230	9,900
1 1/8	CCI 209M	Longshot	21.0	Rem RXP20	1,230	10,000
1 1/8	Fed 209	Blue Dot	26.0	Win AA20F1	1,230	10,100
1 1/8	Win 209	Longshot	21.0	Win AA20	1,230	10,100
1 1/8	Fed 209	Blue Dot	26.5	Rem SP20	1,230	10,300
1 1/8	CCI 209M	Longshot	21.0	Fed 20S1	1,230	10,300
1 1/8	Rem 209P	Longshot	20.3	Fed 20S1	1,230	10,300
1 1/8	Rem 209P	Longshot	20.3	Win AA20	1,230	10,400
1 1/8	CCI 209M	Longshot	20.7	Win AA20	1,230	10,600
1 1/8	Fed 209A	Longshot	21.1	Rem RXP20	1,230	10,600
1 1/8	Fed 209A	Longshot	20.6	Fed 20S1	1,230	10,900
1 1/8	Fed 209A	Longshot	20.7	Win AA20	1,230	10,900
1 1/8	Rem 209P	SR4756	24.0	Fed 20S1	1,235	11,200
1 1/8	Rem 209P	SR4756	24.0	Win AA20	1,240	11,000
1 1/8	Rem 209P	SR4756	24.5	Rem SP20	1,250	11,200
1 1/8	Rem 209P	800-X	21.0	Rem SP20	1,255	11,600
1 1/8	Rem 209P	800-X	22.0	Win AA20	1,275	11,400
1 1/8	Rem 209P	800-X	22.0	Fed 20S1	1,275	11,700
1 1/8	Win 209	Longshot	22.7	Fed 20S1	1,285	10,600
1 1/8	Win 209	Longshot	23.0	Rem RXP20	1,285	10,600
1 1/8	CCI 209M	Longshot	22.6	Rem RXP20	1,285	10,900
1 1/8	Fed 209A	Longshot	22.7	Rem RXP20	1,285	11,000
1 1/8	Rem 209P	Longshot	22.7	Rem RXP20	1,285	11,200
1 1/8	Win 209	Longshot	22.4	Win AA20	1,285	11,300
1 1/8	CCI 209M	Longshot	22.4	Fed 20S1	1,285	11,500
1 1/8	Rem 209P	Longshot	22.2	Fed 20S1	1,285	11,600
1 1/8	Rem 209P	Longshot	22.1	Win AA20	1,285	11,600
1 1/8	Fed 209A	Longshot	21.9	Fed 20S1	1,285	12,000
1 1/4	Fed 209A	800-X	17.5	Rem SP20	1,095	11,500
1 1/4	Win 209	800-X	18.0	Rem SP20	1,105	11,400

Hull #34 (Continued)

20 Gauge 3″

Hull I.D. Page 97

Reference Notes Page 115

Federal Hi-Power Plastic Shell (With Paper Basewad)

20

20 Gauge 3″
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	800-X	18.0	Win AA20F1	1,115	11,700
1 1/4	Win 209	800-X	18.5	Win AA20F1	1,130	11,400
1 1/4	Rem 209P	800-X	19.5	Rem SP20	1,155	11,400
1 1/4	Rem 209P	800-X	20.0	Win AA20F1	1,170	11,000
1 1/4	Win 209	Longshot	20.4	Fed 20S1	1,185	10,300
1 1/4	Win 209	Longshot	21.2	Win AA20F1	1,185	10,300
1 1/4	Fed 209	Blue Dot	25.5	Win AA20F1	1,185	10,400
1 1/4	Rem 209P	Longshot	21.5	Rem RXP20	1,185	10,400
1 1/4	Fed 209	Blue Dot	25.5	Rem SP20	1,185	10,600
1 1/4	Win 209	Longshot	21.3	Rem RXP20	1,185	10,600
1 1/4	CCI 209M	Longshot	21.0	Rem RXP20	1,185	11,000
1 1/4	Rem 209P	Longshot	19.9	Win AA20F1	1,185	11,200
1 1/4	CCI 209M	Longshot	20.2	Fed 20S1	1,185	11,300
1 1/4	Fed 209A	Longshot	20.9	Rem RXP20	1,185	11,300
1 1/4	CCI 209M	Longshot	20.3	Win AA20F1	1,185	11,400
1 1/4	Fed 209A	Longshot	20.2	Win AA20F1	1,185	11,500
1 1/4	Rem 209P	Longshot	20.5	Fed 20S1	1,185	11,600
1 1/4	Fed 209A	Longshot	20.2	Fed 20S1	1,185	11,700
1 1/4	Win 209	Longshot	22.2	Win AA20F1	1,240	11,500

Hull #35

20 Gauge 3″

Hull I.D. Page 97

Reference Notes Page 115

Remington Premier Plastic Shell

20

20 Gauge 3″
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	800-X	15.5	Fed 20C1	1,095	11,600
1 1/8	Fed 209A	800-X	15.5	Win AA20	1,095	11,600
1 1/8	Win 209	800-X	16.0	Rem SP20	1,100	11,600
1 1/8	Fed 209A	800-X	15.5	Rem SP20	1,105	11,800
1 1/8	Rem 209P	800-X	16.0	Win AA20	1,110	11,100
1 1/8	Win 209	800-X	16.0	Win AA20	1,110	11,600
1 1/8	Win 209	800-X	16.5	Fed 20C1	1,120	11,500
1 1/8	Rem 209P	800-X	17.0	Fed 20C1	1,145	11,600
1 1/8	Rem 209P	800-X	17.0	Rem SP20	1,150	11,700
1 1/8	Win 209	Longshot	17.7	Rem RXP20	1,175	10,200
1 1/8	Win 209	Longshot	18.3	PC 20	1,175	10,500
1 1/8	Win 209	Longshot	18.2	Fed 20S1	1,175	10,800
1 1/8	Rem 209P	Longshot	17.6	PC 20	1,175	10,900
1 1/8	CCI 209M	Longshot	17.6	PC 20	1,175	11,400
1 1/8	Win 209	Longshot	18.1	Win AA20	1,175	11,400
1 1/8	CCI 209M	Longshot	17.7	Rem RXP20	1,175	11,500
1 1/8	Rem 209P	Longshot	17.7	Rem RXP20	1,175	11,500
1 1/8	Rem 209P	Longshot	17.6	Win AA20	1,175	12,000

20 Gauge 3" Lead Shot Load Data

Remington Premier Plastic Shell

(Continued) **Hull #35**

20 Gauge 3"

Hull I.D. Page 97
Reference Notes Page 115

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Longshot	19.3	PC 20	1,230	12,000
1 1/4	Fed 209A	800-X	14.5	Rem SP20	1,020	11,700
1 1/4	Win 209	800-X	15.0	Rem SP20	1,035	11,600
1 1/4	Rem 209P	800-X	16.0	Rem SP20	1,070	11,700

20 Gauge 3" Lead Shot Load Data

Winchester Compression Formed and (New) HS AA & AA-type Shell

Hull #36

20 Gauge 3"

Hull I.D. Page 97
Reference Notes Page 115

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Fed 209	PB	14.5	Windjammer	1,145	11,600
7/8	Rem 209P	700-X	13.0	Rem RXP20	1,160	11,800
7/8	Fed 209	PB	15.0	Fed 20S1	1,160	11,900
7/8	Rem 209P	PB	15.5	Fed 20S1	1,175	11,600
7/8	Win 209	PB	15.5	Windjammer	1,175	11,700
7/8	Win 209	PB	15.5	Fed 20S1	1,175	11,800
7/8	Win 209	SR4756	18.0	CB1078-20	1,180	9,700
7/8	Fed 209	PB	15.5	Win AA20	1,180	11,700
7/8	Fed 209	SR4756	18.5	Windjammer	1,185	10,000
7/8	Rem 209P	SR7625	16.5	Fed 20S1	1,185	11,100
7/8	Fed 209	PB	15.5	Windjammer	1,185	11,900
7/8	Rem 209P	800-X	16.5	Rem RXP20	1,190	7,500
7/8	Rem 209P	800-X	16.5	Fed 20S1	1,190	8,200
7/8	Rem 209P	800-X	16.5	Windjammer	1,190	8,400
7/8	Fed 209	800-X	16.0	CB1078-20	1,190	9,400
7/8	Win 209	800-X	16.0	CB1078-20	1,190	9,600
7/8	Win 209	800-X	16.0	Fed 20S1	1,190	9,600
7/8	Fed 209	800-X	16.0	Fed 20S1	1,190	9,700
7/8	Rem 209P	SR7625	17.0	Rem RXP20	1,190	10,100
7/8	Rem 209P	SR4756	18.5	Fed 20S1	1,190	10,100
7/8	Fed 209	SR4756	18.0	Fed 20S1	1,190	10,600
7/8	Win 209	SR7625	16.5	CB1078-20	1,190	10,800
7/8	Fed 209	SR7625	16.5	Fed 20S1	1,190	11,700
7/8	Rem 209P	800-X	16.5	CB1078-20	1,195	8,400
7/8	Win 209	SR4756	18.5	Windjammer	1,195	9,900
7/8	Fed 209	SR4756	18.0	CB1078-20	1,195	10,300
7/8	Rem 209P	PB	16.0	Rem RXP20	1,195	10,900
7/8	Win 209	PB	16.0	Rem RXP20	1,195	11,400
7/8	Win 209	PB	16.0	Win AA20	1,195	11,700
7/8	Fed 209	SR7625	16.5	CB1078-20	1,195	11,700
7/8	Win 209	SR7625	16.5	Fed 20S1	1,195	11,700
7/8	Fed 209	800-X	16.5	Rem RXP20	1,200	8,800
7/8	Win 209	SR4756	18.5	Rem SP20	1,200	9,900
7/8	Rem 209P	SR4756	18.5	CB1078-20	1,200	10,000

Hull #36 (Continued)
20 Gauge 3"
Hull I.D. Page 97
Reference Notes Page 115

Winchester Compression Formed and (New) HS AA & AA-type Shell

20

20 Gauge 3" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	800-X	16.5	Windjammer	1,200	10,300
7/8	Fed 209	SR7625	17.0	Rem RXP20	1,200	10,800
7/8	Rem 209P	SR7625	17.0	Win AA20	1,200	10,900
7/8	Rem 209P	PB	16.0	Windjammer	1,200	11,300
7/8	Rem 209P	PB	16.0	Win AA20	1,200	11,600
7/8	Win 209	PB	16.5	Windjammer	1,200	11,800
7/8	Rem 209P	PB	16.0	CB1078-20	1,200	11,900
7/8	Fed 209	SR7625	16.5	Windjammer	1,200	11,900
7/8	Fed 209	800-X	16.5	Win AA20	1,205	9,400
7/8	Win 209	800-X	16.5	Win AA20	1,205	9,900
7/8	Win 209	SR7625	17.0	Win AA20	1,205	10,600
7/8	Win 209	SR4756	18.0	Fed 20S1	1,205	10,700
7/8	Win 209	SR7625	17.0	Windjammer	1,205	10,900
7/8	Fed 209	SR7625	16.5	Win AA20	1,205	11,700
7/8	Fed 209	PB	16.0	Rem RXP20	1,205	11,900
7/8	Win 209	800-X	16.5	Rem RXP20	1,210	9,400
7/8	Rem 209P	SR4756	19.0	Rem SP20	1,210	9,700
7/8	Rem 209P	SR7625	17.5	Windjammer	1,210	10,300
7/8	Win 209	SR7625	17.0	Rem RXP20	1,210	10,600
7/8	Rem 209P	SR7625	17.0	CB1078-20	1,210	11,300
7/8	Fed 209	800-X	16.5	Windjammer	1,215	10,100
7/8	Fed 209	SR4756	18.5	Rem SP20	1,215	10,700
1 1/8	Win 209	Longshot	18.7	Fed 20S1	1,175	10,400
1 1/8	Win 209	Longshot	18.5	Rem RXP20	1,175	10,500
1 1/8	Win 209	Longshot	18.6	Win AA20	1,175	10,900
1 1/8	Rem 209P	Longshot	18.4	Rem RXP20	1,175	11,200
1 1/8	Rem 209P	Longshot	18.0	Win AA20	1,175	11,200
1 1/8	Win 209	HS-7	27.0	Win AA20	1,220	11,100
1 1/8	Rem 209P	HS-7	27.0	Win AA20	1,220	11,200
1 1/8	Win 209	Longshot	20.0	Rem RXP20	1,230	11,800
1 1/8	Win 209	Longshot	19.5	Win AA20	1,230	12,000
1 1/4	Win 209	HS-7	24.0	Win AA20	1,135	10,900
1 1/4	Rem 209P	HS-7	24.0	Win AA20	1,135	11,000

20

20 Gauge 2 ¾" Lead Shot Load Data

Cheddite Plastic Shell (With Plastic Basewad)

Hull #37

20 Gauge 2 ¾"

Hull I.D. Page 97
Reference Notes Page 115

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Ched 209	Universal	17.0	Fed 20S1	1,200	8,900
7/8	Ched 209	Universal	18.0	G/BP20	1,200	9,100
7/8	Fio 616	Universal	16.7	Fed 20S1	1,200	9,200
7/8	Fio 616	Universal	17.0	G/BP20	1,200	9,500
7/8	Ched 209	Universal	17.5	Fed 20S1	1,225	9,600
7/8	Ched 209	Universal	18.3	G/BP20	1,225	9,700
7/8	Fio 616	Universal	17.1	Fed 20S1	1,225	9,700
7/8	Fio 616	Universal	17.5	G/BP20	1,225	9,700
7/8	Ched 209	Universal	18.1	Fed 20S1	1,250	10,000
7/8	Fio 616	Universal	18.0	G/BP20	1,250	10,200
7/8	Fio 616	Universal	17.5	Fed 20S1	1,250	10,300
7/8	Ched 209	Universal	18.6	G/BP20	1,250	9,900
7/8	Ched 209	Longshot	21.3	Rem RXP20	1,300	7,800
7/8	Fio 616	Longshot	20.7	Fed 20S1	1,300	8,700
7/8	Fio 616	Longshot	20.3	GU 2025	1,300	8,800
7/8	Ched 209	Longshot	21.4	Fed 20S1	1,300	9,000
7/8	Fio 616	Longshot	21.1	Rem RXP20	1,300	9,100
7/8	Ched 209	Longshot	22.5	Rem RXP20	1,350	8,700
7/8	Fio 616	Longshot	21.7	Fed 20S1	1,350	9,400
7/8	Ched 209	Longshot	21.3	GU 2025	1,350	9,700
7/8	Ched 209	Longshot	22.6	Fed 20S1	1,350	9,800
7/8	Fio 616	Longshot	21.4	GU 2025	1,350	9,800
7/8	Fio 616	Longshot	22.3	Rem RXP20	1,350	9,900
7/8	Fio 616	Longshot	22.8	Fed 20S1	1,400	10,200
7/8	Ched 209	Longshot	22.4	GU 2025	1,400	10,500
7/8	Ched 209	Longshot	23.7	Fed 20S1	1,400	10,600
7/8	Fio 616	Longshot	22.4	GU 2025	1,400	10,700
7/8	Fio 616	Longshot	23.4	Rem RXP20	1,400	10,700
7/8	Ched 209	Longshot	23.6	Rem RXP20	1,400	9,400
7/8	Ched 209	Longshot	24.8	Rem RXP20	1,450	10,300
7/8	Fio 616	Longshot	23.8	Fed 20S1	1,450	10,900
7/8	Ched 209	Longshot	23.5	GU 2025	1,450	11,300
7/8	Fio 616	Longshot	23.5	GU 2025	1,450	11,400
7/8	Ched 209	Longshot	24.9	Fed 20S1	1,450	11,500
7/8	Fio 616	Longshot	24.6	Rem RXP20	1,450	11,500
1	Ched 209	Longshot	17.5	GU 2021	1,165	7,700
1	Fio 616	Longshot	17.4	GU 2021	1,165	8,100
1	Ched 209	Longshot	17.5	Win AA20	1,165	8,300
1	Ched 209	Longshot	17.8	Fed 20S1	1,165	9,200
1	Ched 209	Longshot	19.0	Fed 20S1	1,220	10,000
1	Ched 209	Longshot	18.9	GU 2021	1,220	8,900
1	Fio 616	Longshot	18.9	GU 2021	1,220	9,200
1	Ched 209	Longshot	19.0	Win AA20	1,220	9,600
1	Ched 209	Longshot	20.2	GU 2021	1,275	10,100
1	Fio 616	Longshot	20.4	GU 2021	1,275	10,300
1	Ched 209	Longshot	20.2	Fed 20S1	1,275	10,900
1	Ched 209	Longshot	20.5	Win AA20	1,275	10,900
1	Ched 209	Longshot	21.6	GU 2021	1,330	11,400
1	Fio 616	Longshot	21.9	GU 2021	1,450	11,500

Hull #38

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Federal Plastic Target Shell (With Paper Basewad)

20

20 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	CCI 109	Green Dot	14.5	Win AA20	1,155	8,000
7/8	CCI 109	Unique	17.0	Lage Uniwad	1,155	8,300
7/8	CCI 109	Green Dot	14.5	Fed 20S1	1,155	8,400
7/8	CCI 109	Unique	16.0	Rem RXP20	1,155	8,600
7/8	Fed 209	Unique	16.5	Windjammer	1,155	8,600
7/8	CCI 109	Green Dot	15.5	Lage Uniwad	1,155	8,700
7/8	CCI 209M	Unique	16.0	Fed 20S1	1,155	8,700
7/8	CCI 209M	Green Dot	14.5	Fed 20S1	1,155	9,100
7/8	Fed 209	Green Dot	14.5	Win AA20	1,155	9,700
7/8	Fed 209	Green Dot	15.0	Windjammer	1,155	10,000
7/8	Fed 209	Green Dot	15.5	Hor Versalite	1,155	10,000
7/8	Fed 209	Green Dot	16.0	Lage Uniwad	1,155	10,100
7/8	Rem 209P	SR4756	21.5	Rem RXP20	1,180	7,000
7/8	Fed 209A	800-X	17.0	CB1078-20	1,190	7,800
7/8	Fed 209A	800-X	17.0	Fed 20S1	1,190	8,200
7/8	Fed 209A	SR7625	18.5	Windjammer	1,190	8,600
7/8	Win 209	700-X	14.0	CB1078-20	1,190	11,000
7/8	Fed 209A	700-X	14.0	Fed 20S1	1,190	11,900
7/8	Rem 209P	800-X	17.0	Windjammer	1,195	7,300
7/8	Rem 209P	800-X	17.5	Fed 20S1	1,195	7,900
7/8	Win 209	800-X	17.0	CB1078-20	1,195	8,100
7/8	Win 209	SR4756	20.5	Win AA20F1	1,195	8,200
7/8	Win 209	SR4756	20.5	Windjammer	1,195	8,300
7/8	Win 209	SR7625	18.5	Win AA20	1,195	8,400
7/8	Rem 209P	SR7625	18.5	Win AA20	1,195	8,500
7/8	Win 209	SR7625	18.5	Rem RXP20	1,195	8,500
7/8	Rem 209P	SR7625	18.5	CB1078-20	1,195	8,600
7/8	Win 209	SR7625	18.5	Fed 20S1	1,195	8,600
7/8	Fed 209A	SR7625	18.5	Fed 20S1	1,195	8,700
7/8	Win 209	PB	18.0	Rem RXP20	1,195	9,000
7/8	Win 209	PB	17.5	Windjammer	1,195	9,500
7/8	Fed 209A	PB	17.0	CB1078-20	1,195	9,800
7/8	CCI 209M	Herco	17.5	Fed 20S1	1,200	7,600
7/8	Fed 209A	800-X	17.5	Rem RXP20	1,200	7,600
7/8	Rem 209P	800-X	17.5	Win AA20	1,200	7,600
7/8	Fed 209A	SR4756	21.0	Rem RXP20	1,200	7,800
7/8	Rem 209P	SR4756	21.5	Win AA20F1	1,200	7,900
7/8	Rem 209P	SR4756	21.5	Windjammer	1,200	7,900
7/8	Win 209	800-X	17.5	Windjammer	1,200	8,000
7/8	Rem 209P	SR7625	19.0	Windjammer	1,200	8,300
7/8	Rem 209P	SR7625	19.0	Fed 20S1	1,200	8,300
7/8	Win 209	800-X	17.5	Fed 20S1	1,200	8,300
7/8	Rem 209P	Universal	18.5	Rem RXP20	1,200	8,400
7/8	CCI 109	Unique	17.0	Fed 20S1	1,200	8,500
7/8	CCI 109	Unique	17.0	Win AA20	1,200	8,500
7/8	Rem 209P	Universal	17.8	Win AA20F1	1,200	8,700
7/8	CCI 109	Herco	18.0	Rem RXP20	1,200	8,800
7/8	CCI 109	Unique	18.0	Lage Uniwad	1,200	8,800

20

20 Gauge 2 ¾"
Lead Shot Load Data

Federal Plastic Target Shell (With Paper Basewad)

(Continued) **Hull #38**

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209P	PB	17.5	Rem RXP20	1,200	8,900
7/8	Rem 209P	Universal	18.0	Windjammer	1,200	8,900
7/8	CCI 209SC	Universal	17.5	Rem RXP20	1,200	9,000
7/8	CCI 109	Green Dot	15.5	Win AA20	1,200	9,100
7/8	CCI 109	Herco	17.0	Win AA20	1,200	9,100
7/8	CCI 209M	Unique	17.0	Fed 20S1	1,200	9,100
7/8	Win 209	SR7625	19.0	Windjammer	1,200	9,100
7/8	Fed 209A	Herco	18.0	PC 20	1,200	9,200
7/8	CCI 109	Unique	17.0	Rem RXP20	1,200	9,200
7/8	CCI 209SC	Universal	17.2	Win AA20F1	1,200	9,200
7/8	Win 209	Universal	17.5	Windjammer	1,200	9,200
7/8	CCI 209M	Green Dot	16.5	Fed 20S1	1,200	9,300
7/8	CCI 109	Herco	17.0	Fed 20S1	1,200	9,300
7/8	Rem 209P	PB	17.5	Win AA20	1,200	9,300
7/8	Rem 209P	PB	17.5	CB1078-20	1,200	9,300
7/8	Rem 209P	Universal	18.0	Fed 20S1	1,200	9,300
7/8	Win 209	Universal	17.5	Rem RXP20	1,200	9,300
7/8	Win 209	Universal	17.0	Win AA20	1,200	9,300
7/8	CCI 109	Green Dot	15.5	Fed 20S1	1,200	9,400
7/8	Fed 209A	PB	17.5	Win AA20	1,200	9,400
7/8	Rem 209P	PB	17.5	Fed 20S1	1,200	9,400
7/8	Win 209	PB	17.5	Win AA20	1,200	9,400
7/8	Win 209	Universal	17.5	PC 20	1,200	9,400
7/8	Fed 209A	PB	17.5	Windjammer	1,200	9,500
7/8	Win 209	PB	17.5	CB1078-20	1,200	9,500
7/8	CCI 209SC	Universal	17.0	Fed 20S1	1,200	9,500
7/8	CCI 209SC	Universal	17.5	PC 20	1,200	9,500
7/8	CCI 209SC	Universal	17.0	Windjammer	1,200	9,500
7/8	CCI 109	Green Dot	16.0	Rem RXP20	1,200	9,600
7/8	Fed 209A	Universal	17.0	Windjammer	1,200	9,600
7/8	Win 209	Universal	17.4	Fed 20S1	1,200	9,600
7/8	Fed 209A	Unique	18.0	PC 20	1,200	9,800
7/8	Fed 209A	Universal	17.0	Rem RXP20	1,200	9,800
7/8	CCI 109	Green Dot	16.0	Lage Uniwad	1,200	10,000
7/8	CCI 209SC	International	14.5	Rem RXP20	1,200	10,000
7/8	Fed 209A	Universal	16.7	Fed 20S1	1,200	10,000
7/8	Fed 209A	Universal	17.0	PC 20	1,200	10,000
7/8	Win 209	Universal	17.0	Win AA20F1	1,200	10,000
7/8	Fed 209A	Universal	17.0	Win AA20F1	1,200	10,100
7/8	Fed 209	Herco	18.5	Windjammer	1,200	10,200
7/8	Rem 209P	International	15.0	Win AA20F1	1,200	10,200
7/8	Win 209	International	14.7	Rem RXP20	1,200	10,200
7/8	CCI 209SC	International	14.7	Win AA20F1	1,200	10,300
7/8	CCI 209SC	International	14.7	PC 20	1,200	10,400
7/8	Fed 209	Green Dot	16.0	Hor Versalite	1,200	10,500
7/8	Win 209	International	14.5	Win AA20F1	1,200	10,500
7/8	Fed 209	Green Dot	16.5	Fed 20S1	1,200	10,600
7/8	Fed 209	Unique	17.0	Windjammer	1,200	10,600

Hull #38 (Continued)

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Federal Plastic Target Shell (With Paper Basewad)

20

20 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	CCI 209SC	International	15.0	Windjammer	1,200	10,700
7/8	Rem 209P	International	15.3	Fed 20S1	1,200	10,700
7/8	Rem 209P	International	15.3	Windjammer	1,200	10,700
7/8	Win 209	International	14.5	Windjammer	1,200	10,800
7/8	Fed 209	Green Dot	16.0	Windjammer	1,200	10,900
7/8	Fed 209	Green Dot	16.5	Lage Uniwad	1,200	11,000
7/8	CCI 209SC	International	15.0	Fed 20S1	1,200	11,100
7/8	Fed 209A	International	14.7	Rem RXP20	1,200	11,100
7/8	Fed 209A	Green Dot	16.0	PC 20	1,200	11,200
7/8	Win 209	International	15.0	PC 20	1,200	11,200
7/8	Fed 209A	International	14.5	Windjammer	1,200	11,300
7/8	Win 209	International	14.6	Fed 20S1	1,200	11,400
7/8	Fed 209A	International	14.5	Fed 20S1	1,200	11,500
7/8	Fed 209A	International	14.5	Win AA20F1	1,200	11,500
7/8	Rem 209P	SR4756	21.5	Fed 20S1	1,205	7,600
7/8	Rem 209P	800-X	17.5	CB1078-20	1,205	7,900
7/8	Win 209	SR4756	21.0	Rem RXP20	1,205	7,900
7/8	Fed 209A	800-X	17.5	Win AA20	1,205	8,000
7/8	Fed 209A	800-X	17.5	Windjammer	1,205	8,000
7/8	Rem 209P	SR7625	19.5	Rem RXP20	1,205	8,300
7/8	Fed 209A	SR4756	20.5	Win AA20F1	1,205	8,500
7/8	Win 209	SR4756	20.5	Fed 20S1	1,205	8,500
7/8	Fed 209A	PB	17.5	Rem RXP20	1,205	9,300
7/8	Win 209	700-X	14.5	Rem RXP20	1,205	11,000
7/8	Win 209	700-X	14.5	Windjammer	1,205	11,200
7/8	Rem 209P	700-X	14.5	CB1078-20	1,205	11,300
7/8	Rem 209P	700-X	14.5	Windjammer	1,205	11,400
7/8	Rem 209P	700-X	14.5	Fed 20S1	1,205	11,600
7/8	Rem 209P	800-X	18.0	Rem RXP20	1,210	7,600
7/8	Win 209	800-X	17.5	Rem RXP20	1,210	8,000
7/8	Win 209	800-X	17.5	Win AA20	1,210	8,100
7/8	Fed 209A	SR7625	19.0	Rem RXP20	1,210	8,700
7/8	Fed 209A	SR4756	20.5	Windjammer	1,210	8,700
7/8	Fed 209A	SR4756	20.5	Fed 20S1	1,210	8,700
7/8	Win 209	SR7625	18.5	CB1078-20	1,210	9,000
7/8	Fed 209A	SR7625	18.5	Win AA20	1,210	9,200
7/8	Rem 209P	PB	18.0	Windjammer	1,210	9,500
7/8	Fed 209A	SR7625	18.5	CB1078-20	1,210	9,500
7/8	Fed 209A	PB	17.5	Fed 20S1	1,210	10,000
7/8	Win 209	PB	17.5	Fed 20S1	1,210	10,100
7/8	Rem 209P	700-X	14.5	Win AA20	1,210	11,200
7/8	Win 209	700-X	14.5	Win AA20	1,210	11,200
7/8	Fed 209A	700-X	14.5	Rem RXP20	1,210	11,500
7/8	Fed 209A	700-X	14.5	Win AA20	1,210	11,700
7/8	Fed 209A	700-X	14.5	Windjammer	1,210	11,800
7/8	Win 209	700-X	14.5	Fed 20S1	1,210	11,800
7/8	Rem 209P	700-X	15.0	Rem RXP20	1,215	11,100
7/8	Rem 209P	Universal	19.0	Rem RXP20	1,225	9,100

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20 Gauge 2 ¾" Lead Shot Load Data

Federal Plastic Target Shell (With Paper Basewad)

(Continued) **Hull #38**

20 Gauge 2 ¾"

Hull I.D. Page 98
Reference Notes Page 116

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209P	Universal	18.5	Windjammer	1,225	9,400
7/8	CCI 209SC	Universal	17.7	Win AA20F1	1,225	9,500
7/8	Rem 209P	Universal	18.3	Win AA20F1	1,225	9,500
7/8	CCI 209SC	Universal	18.0	Rem RXP20	1,225	9,800
7/8	CCI 209SC	Universal	17.6	Windjammer	1,225	9,800
7/8	Win 209	Universal	18.2	Rem RXP20	1,225	9,800
7/8	Win 209	Universal	17.5	Win AA20	1,225	9,900
7/8	Win 209	Universal	18.2	Windjammer	1,225	9,900
7/8	CCI 209SC	Universal	17.6	Fed 20S1	1,225	10,100
7/8	Fed 209A	Universal	17.7	Rem RXP20	1,225	10,200
7/8	Win 209	Universal	17.4	Win AA20F1	1,225	10,200
7/8	Fed 209A	Universal	17.5	Windjammer	1,225	10,300
7/8	Win 209	Universal	18.0	Fed 20S1	1,225	10,300
7/8	Fed 209A	Universal	17.5	Win AA20F1	1,225	10,500
7/8	CCI 209SC	International	15.5	Rem RXP20	1,225	10,700
7/8	Fed 209A	Universal	17.0	Fed 20S1	1,225	10,700
7/8	Rem 209P	International	15.5	Win AA20F1	1,225	11,300
7/8	Win 209	International	15.3	Rem RXP20	1,225	11,300
7/8	Rem 209P	International	16.0	Windjammer	1,225	11,400
7/8	Win 209	International	15.1	Win AA20F1	1,225	11,500
7/8	CCI 209SC	International	15.3	Win AA20F1	1,225	11,600
7/8	CCI 209SC	International	15.6	Fed 20S1	1,225	11,800
7/8	CCI 209SC	International	15.5	Windjammer	1,225	11,800
7/8	Fed 209A	International	14.9	Windjammer	1,225	12,000
7/8	CCI 209SC	Universal	18.5	Rem RXP20	1,250	10,000
7/8	CCI 209SC	Universal	18.0	Win AA20F1	1,250	10,000
7/8	Win 209	Universal	18.0	Win AA20	1,250	10,200
7/8	CCI 209SC	Universal	18.2	Windjammer	1,250	10,300
7/8	Fed 209A	Universal	18.0	Rem RXP20	1,250	10,400
7/8	Win 209	Universal	17.9	Win AA20F1	1,250	10,400
7/8	Win 209	Universal	18.5	Windjammer	1,250	10,400
7/8	Fed 209A	Universal	17.8	Win AA20F1	1,250	10,800
7/8	Fed 209A	Universal	18.0	Windjammer	1,250	10,800
7/8	Rem 209P	International	16.0	Win AA20F1	1,250	11,500
7/8	Fed 209A	700-X	14.0	CB1078-20	1,290	11,400
7/8	Win 209	Longshot	22.3	Win AA20	1,300	7,500
7/8	Win 209	Longshot	21.5	Fed 20S1	1,300	8,100
7/8	Rem 209P	Longshot	22.5	Rem RXP20	1,300	8,200
7/8	CCI 209M	Longshot	21.1	Rem RXP20	1,300	8,500
7/8	Rem 209P	Longshot	20.8	Win AA20	1,300	8,600
7/8	CCI 209M	Longshot	21.0	Win AA20	1,300	8,700
7/8	Fed 209A	Longshot	20.5	Rem RXP20	1,300	8,800
7/8	Rem 209P	Longshot	20.6	Fed 20S1	1,300	8,800
7/8	CCI 209M	Longshot	20.5	Fed 20S1	1,300	8,900
7/8	Fed 209A	Longshot	20.6	Win AA20	1,300	8,900
7/8	Fed 209A	Longshot	20.3	Fed 20S1	1,300	9,300
7/8	Win 209	Longshot	24.1	Rem RXP20	1,350	7,700
7/8	Win 209	Longshot	23.3	Win AA20	1,350	8,300

Hull #38 (Continued)

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Federal Plastic Target Shell (With Paper Basewad)

20

20 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	Longshot	22.6	Fed 20S1	1,350	8,900
7/8	Rem 209P	Longshot	23.2	Rem RXP20	1,350	9,000
7/8	CCI 209M	Longshot	22.1	Rem RXP20	1,350	9,200
7/8	Rem 209P	Longshot	21.9	Win AA20	1,350	9,400
7/8	CCI 209M	Longshot	21.7	Win AA20	1,350	9,700
7/8	Rem 209P	Longshot	21.7	Fed 20S1	1,350	9,700
7/8	CCI 209M	Longshot	21.5	Fed 20S1	1,350	9,800
7/8	Fed 209A	Longshot	21.6	Rem RXP20	1,350	9,800
7/8	Fed 209A	Longshot	21.7	Win AA20	1,350	9,800
7/8	Fed 209A	Longshot	21.3	Fed 20S1	1,350	10,200
7/8	Win 209	Longshot	24.9	Rem RXP20	1,400	8,700
7/8	Win 209	Longshot	24.3	Win AA20	1,400	9,200
7/8	Rem 209P	Longshot	23.9	Rem RXP20	1,400	9,700
7/8	Win 209	Longshot	23.7	Fed 20S1	1,400	9,700
7/8	CCI 209M	Longshot	23.2	Rem RXP20	1,400	9,900
7/8	Rem 209P	Longshot	22.9	Win AA20	1,400	10,200
7/8	Rem 209P	Longshot	22.8	Fed 20S1	1,400	10,500
7/8	Fed 209A	Longshot	22.8	Win AA20	1,400	10,600
7/8	Fed 209A	Longshot	22.7	Rem RXP20	1,400	10,700
7/8	CCI 209M	Longshot	22.6	Fed 20S1	1,400	10,900
7/8	Fed 209A	Longshot	22.3	Fed 20S1	1,400	11,100
7/8	Win 209	Longshot	25.7	Rem RXP20	1,450	9,600
7/8	Rem 209P	Longshot	24.5	Rem RXP20	1,450	10,400
7/8	CCI 209M	Longshot	24.2	Rem RXP20	1,450	10,700
7/8	Win 209	Longshot	25.0	Win AA20	1,450	10,800
7/8	Rem 209P	Longshot	24.0	Win AA20	1,450	11,000
7/8	Win 209	Longshot	25.0	Fed 20S1	1,450	11,000
7/8	Fed 209A	Longshot	23.9	Win AA20	1,450	11,400
7/8	Fed 209A	Longshot	23.8	Rem RXP20	1,450	11,800
7/8	Rem 209P	Longshot	24.0	Fed 20S1	1,450	11,900
1	Win 209	Longshot	19.8	Rem RXP20	1,165	8,100
1	Win 209	Longshot	17.8	Win AA20F1	1,165	8,400
1	Rem 209P	Longshot	17.7	Fed 20S1	1,165	8,700
1	Rem 209P	Longshot	19.0	Rem RXP20	1,165	8,700
1	Win 209	Longshot	18.6	Fed 20S1	1,165	9,000
1	Fed 209A	Longshot	17.7	Win AA20F1	1,165	9,100
1	Rem 209P	Longshot	17.1	Win AA20F1	1,165	9,100
1	CCI 209M	Longshot	17.7	Fed 20S1	1,165	9,200
1	Fed 209A	Longshot	16.8	Fed 20S1	1,165	9,400
1	Fed 209A	Longshot	17.4	Rem SP20	1,165	9,400
1	Fed 209	Herco	17.0	Rem SP20	1,165	9,600
1	Fed 209A	HS-6	21.0	Win AA20F1	1,165	9,700
1	CCI 209M	HS-6	21.5	Win AA20F1	1,165	9,800
1	Win 209	HS-6	21.5	Rem SP20	1,165	9,900
1	CCI 209M	HS-6	21.3	Rem SP20	1,165	10,000
1	Fed 209A	HS-6	21.0	Rem SP20	1,165	10,100
1	Win 209	HS-6	21.5	Win AA20F1	1,165	10,100
1	Fed 209	Unique	16.0	Rem SP20	1,165	10,800
1	Fed 209	Herco	16.5	Win AA20F1	1,165	11,100

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20 Gauge 2 ¾" Lead Shot Load Data

Federal Plastic Target Shell (With Paper Basewad)

(Continued) **Hull #38**

20 Gauge 2 ¾"

Hull I.D. Page 98
Reference Notes Page 116

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209	Herco	17.0	Rem RXP20	1,165	11,300
1	Fed 209	Unique	15.5	Win AA20F1	1,165	11,300
1	Fed 209A	SR7625	19.0	Win AA20F1	1,205	11,700
1	Win 209	Longshot	20.7	Rem RXP20	1,220	8,900
1	Win 209	Longshot	19.5	Win AA20F1	1,220	9,400
1	Rem 209P	Longshot	19.8	Rem RXP20	1,220	9,600
1	CCI 209M	Herco	18.5	Fed 20S1	1,220	9,800
1	Win 209	Longshot	19.7	Fed 20S1	1,220	9,900
1	Rem 209P	Longshot	18.8	Win AA20F1	1,220	10,000
1	Fed 209	Blue Dot	24.0	Win AA20F1	1,220	10,100
1	Fed 209A	Longshot	18.9	Win AA20F1	1,220	10,100
1	Rem 209P	Longshot	19.0	Fed 20S1	1,220	10,100
1	Fed 209	Blue Dot	24.0	Rem SP20	1,220	10,200
1	CCI 209M	Longshot	19.5	Rem SP20	1,220	10,400
1	CCI 209M	Longshot	18.9	Win AA20F1	1,220	10,400
1	CCI 209M	Longshot	19.1	Fed 20S1	1,220	10,500
1	Fed 209A	Longshot	18.9	Rem SP20	1,220	10,500
1	Fed 209A	Longshot	18.5	Fed 20S1	1,220	10,600
1	CCI 209M	HS-6	22.5	Rem SP20	1,220	10,800
1	Win 209	HS-6	23.0	Rem SP20	1,220	10,900
1	CCI 209M	HS-6	23.0	Win AA20F1	1,220	11,200
1	Fed 209A	HS-6	22.5	Win AA20F1	1,220	11,200
1	Fed 209A	HS-6	22.5	Rem SP20	1,220	11,300
1	Win 209	HS-6	23.0	Win AA20F1	1,220	11,700
1	Win 209	SR7625	20.5	Win AA20F1	1,235	11,600
1	Rem 209P	SR7625	21.0	Rem SP20	1,240	11,400
1	Fed 209A	800-X	18.5	Rem SP20	1,245	11,600
1	Win 209	HS-6	24.0	Rem SP20	1,250	11,700
1	Fed 209A	800-X	19.0	Fed 20S1	1,255	11,500
1	Win 209	800-X	19.5	Fed 20S1	1,270	11,600
1	Fed 209A	800-X	19.0	Win AA20F1	1,270	11,800
1	Win 209	Longshot	21.5	Rem RXP20	1,275	9,700
1	Win 209	Longshot	21.0	Win AA20F1	1,275	10,300
1	Rem 209P	Longshot	20.7	Rem RXP20	1,275	10,600
1	Win 209	Longshot	20.9	Fed 20S1	1,275	10,800
1	Rem 209P	Longshot	20.6	Win AA20F1	1,275	10,900
1	Rem 209P	800-X	20.0	Fed 20S1	1,275	11,100
1	Fed 209A	Longshot	20.2	Win AA20F1	1,275	11,200
1	Rem 209P	Longshot	20.2	Fed 20S1	1,275	11,400
1	Fed 209A	Longshot	20.4	Rem SP20	1,275	11,700
1	CCI 209M	Longshot	20.5	Fed 20S1	1,275	11,800
1	CCI 209M	Longshot	20.6	Rem SP20	1,275	11,800
1	CCI 209M	Longshot	20.5	Win AA20F1	1,275	11,800
1	Fed 209A	Longshot	20.3	Fed 20S1	1,275	11,800
1	Win 209	800-X	19.5	Win AA20F1	1,285	11,500
1	Win 209	800-X	20.0	Rem SP20	1,290	11,700
1	Rem 209P	800-X	21.0	Rem SP20	1,320	11,400
1	Rem 209P	800-X	21.0	Win AA20F1	1,330	11,600
1 1/8	Fed 209	Blue Dot	23.0	Rem SP20	1,175	10,900

Hull #39

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Fiocchi Shells (With Plastic Basewad)

20

20 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Fio 616	Unique	18.0	Hor Versalite	1,155	8,300
7/8	Fio 616	Unique	17.5	Lage Uniwad	1,155	8,600
7/8	Win 209	Unique	16.5	Fed 20S1	1,155	9,000
7/8	Fio 616	Green Dot	15.0	Fed 20S1	1,155	9,100
7/8	Fio 616	Unique	17.0	Fed 20S1	1,155	9,100
7/8	CCI 209M	Unique	16.0	Fed 20S1	1,155	9,200
7/8	Rem 209	Unique	16.0	Fed 20S1	1,155	9,400
7/8	Fio 616	Green Dot	15.5	Lage Uniwad	1,155	9,500
7/8	Fio 616	Unique	16.0	Fed 20S1	1,155	9,500
7/8	Fio 616	Green Dot	15.5	Hor Versalite	1,155	9,700
7/8	Rem 209	Green Dot	14.5	Fed 20S1	1,155	10,000
7/8	Fed 209	Unique	15.5	Fed 20S1	1,155	10,000
7/8	Fio 616	Green Dot	14.5	Fed 20S1	1,155	10,400
7/8	CCI 209M	Green Dot	14.5	Fed 20S1	1,155	10,500
7/8	Win 209	Green Dot	14.5	Fed 20S1	1,155	10,600
7/8	Fed 209	Green Dot	14.5	Fed 20S1	1,155	11,100
7/8	Fio 615	Unique	19.0	Lage Uniwad	1,200	8,000
7/8	Fio 615	Green Dot	17.5	Lage Uniwad	1,200	8,200
7/8	Fio 615	Herco	19.0	Hor Versalite	1,200	8,300
7/8	Fio 615	Herco	19.0	Rem RXP20	1,200	8,500
7/8	Fio 616	Universal	18.1	GU 2025	1,200	8,500
7/8	Ched 209	Universal	18.1	GU 2025	1,200	8,600
7/8	Fio 615	Herco	18.5	Win AA20	1,200	8,700
7/8	Ched 209	Universal	18.5	Rem RXP20	1,200	8,700
7/8	Ched 209	Universal	18.0	Win AA20	1,200	9,000
7/8	Fio 616	Universal	17.3	Rem RXP20	1,200	9,100
7/8	Fio 615	Herco	18.0	Fed 20S1	1,200	9,200
7/8	Fio 616	Herco	18.0	Fed 20S1	1,200	9,200
7/8	Fio 616	Universal	17.0	Win AA20	1,200	9,300
7/8	Ched 209	Universal	17.5	Fed 20S1	1,200	9,400
7/8	Fio 616	Universal	17.5	Windjammer	1,200	9,400
7/8	Fio 615	Unique	17.5	Win AA20	1,200	9,600
7/8	Fio 615	Unique	18.0	Fed 20S1	1,200	9,700
7/8	Fio 616	Universal	16.6	Fed 20S1	1,200	9,800
7/8	Fio 616	Universal	17.0	PC 20	1,200	9,800
7/8	Rem 209	Herco	16.5	Fed 20S1	1,200	9,900
7/8	CCI 209M	Herco	17.0	Fed 20S1	1,200	9,900
7/8	Win 209	Herco	18.0	Fed 20S1	1,200	9,900
7/8	Fio 615	Green Dot	16.0	Hor Versalite	1,200	10,000
7/8	CCI 209M	Unique	17.0	Fed 20S1	1,200	10,000
7/8	Fio 616	Unique	17.5	Fed 20S1	1,200	10,000
7/8	Win 209	Unique	16.0	Fed 20S1	1,200	10,100
7/8	Fed 209	Herco	17.5	Fed 20S1	1,200	10,200
7/8	Fio 615	Green Dot	16.5	Rem RXP20	1,200	10,300
7/8	Win 209	Green Dot	16.0	Fed 20S1	1,200	10,400
7/8	Fio 616	Green Dot	15.5	Fed 20S1	1,200	10,600
7/8	CCI 209M	Green Dot	15.5	Fed 20S1	1,200	10,700
7/8	Fio 616	International	15.0	Rem RXP20	1,200	10,700

Fiocchi Shells (With Plastic Basewad)

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209	Green Dot	15.5	Fed 20S1	1,200	10,800
7/8	Fio 615	Green Dot	16.0	Win AA20	1,200	10,800
7/8	Fed 209	Unique	17.0	Fed 20S1	1,200	10,800
7/8	Fio 615	Green Dot	16.0	Fed 20S1	1,200	10,900
7/8	Fio 616	International	14.8	PC 20	1,200	11,000
7/8	Fed 209	Green Dot	15.5	Fed 20S1	1,200	11,100
7/8	Fio 616	International	14.8	Win AA20	1,200	11,700
7/8	Fio 616	International	14.6	Fed 20S1	1,200	11,800
7/8	Fio 616	International	15.0	Windjammer	1,200	12,000
7/8	Ched 209	Universal	18.5	GU 2025	1,225	9,000
7/8	Fio 616	Universal	18.5	GU 2025	1,225	9,000
7/8	Ched 209	Universal	18.0	Fed 20S1	1,225	9,300
7/8	Fio 616	Universal	18.0	Rem RXP20	1,225	9,800
7/8	Fio 616	Universal	17.6	Win AA20	1,225	9,800
7/8	Fio 616	Universal	17.8	Windjammer	1,225	9,900
7/8	Fio 616	Universal	17.0	Fed 20S1	1,225	10,600
7/8	Fio 616	Universal	18.9	GU 2025	1,250	9,400
7/8	Ched 209	Universal	19.0	GU 2025	1,250	9,500
7/8	Fio 616	Universal	18.0	Win AA20	1,250	10,000
7/8	Fio 616	Universal	19.3	GU 2025	1,275	9,800
7/8	Fio 616	Longshot	20.7	GU 2025	1,300	8,100
7/8	Ched 209	Longshot	20.4	GU 2025	1,300	8,200
7/8	Fio 616	Longshot	21.2	Fed 20S1	1,300	9,100
7/8	Ched 209	Longshot	20.7	Fed 20S1	1,300	9,300
7/8	Fio 616	Longshot	22.0	Rem RXP20	1,350	9,100
7/8	Ched 209	Longshot	21.6	GU 2025	1,350	9,200
7/8	Ched 209	Longshot	22.0	Rem RXP20	1,350	9,200
7/8	Ched 209	Longshot	21.8	Fed 20S1	1,350	9,300
7/8	Fio 616	Longshot	21.7	GU 2025	1,350	9,300
7/8	Fio 616	Longshot	22.2	Fed 20S1	1,350	10,400
7/8	Fio 616	Longshot	23.2	Rem RXP20	1,400	10,000
7/8	Ched 209	Longshot	23.0	Fed 20S1	1,400	10,200
7/8	Ched 209	Longshot	22.8	GU 2025	1,400	10,200
7/8	Fio 616	Longshot	22.7	GU 2025	1,400	10,400
7/8	Ched 209	Longshot	23.5	Rem RXP20	1,400	10,500
7/8	Fio 616	Longshot	23.2	Fed 20S1	1,400	11,600
7/8	Fio 616	Longshot	24.3	Rem RXP20	1,450	10,800
7/8	Ched 209	Longshot	24.1	Fed 20S1	1,450	11,000
7/8	Fio 616	Longshot	23.7	GU 2025	1,450	11,500
7/8	Ched 209	Longshot	24.0	GU 2025	1,450	11,600
7/8	Ched 209	Longshot	24.8	Rem RXP20	1,450	11,600
1	Ched 209	Longshot	17.3	GU 2021	1,165	8,000
1	Fio 616	Longshot	17.4	GU 2021	1,165	8,000
1	Fio 616	Longshot	18.0	Fed 20S1	1,165	8,900
1	Fio 616	Longshot	18.3	Win AA20	1,165	9,000
1	Fio 616	Longshot	18.9	GU 2021	1,220	9,100
1	Fio 615	Blue Dot	27.5	Rem SP20	1,220	9,200
1	Ched 209	Longshot	18.8	GU 2021	1,220	9,300

Hull #39 (Continued)

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Fiocchi Shells (With Plastic Basewad)

20

20 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fio 616	Longshot	19.4	Win AA20	1,220	9,900
1	Fio 616	Longshot	19.2	Fed 20S1	1,220	10,000
1	Fed 209	Blue Dot	23.0	Rem SP20	1,220	10,300
1	Fio 616	Blue Dot	24.5	Rem SP20	1,220	10,300
1	Rem 209	Blue Dot	22.5	Rem SP20	1,220	10,600
1	CCI 209M	Blue Dot	24.0	Rem SP20	1,220	10,700
1	Fio 616	Longshot	20.5	GU 2021	1,275	10,200
1	Fed 209	Blue Dot	25.0	Rem SP20	1,275	10,300
1	Win 209	Blue Dot	26.0	Rem SP20	1,275	10,600
1	Ched 209	Longshot	20.2	GU 2021	1,275	10,600
1	Fio 616	Blue Dot	26.0	Rem SP20	1,275	10,800
1	Fio 616	Longshot	20.5	Win AA20	1,275	10,800
1	Fio 616	Longshot	20.4	Fed 20S1	1,275	11,200
1	Fio 616	Longshot	22.0	GU 2021	1,330	11,300
1	Ched 209	Longshot	21.6	GU 2021	1,330	11,800
1 1/8	Fio 616	Blue Dot	23.5	Rem SP20	1,175	10,000
1 1/8	Fed 209	Blue Dot	23.5	Rem SP20	1,175	10,700
1 1/8	Win 209	Blue Dot	23.5	Rem SP20	1,175	11,400

Hull #40

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Remington Premier, STS, RXP Plastic Target Shell

20

20 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Rem 209P	International	12.5	PC 20	1,150	8,400
3/4	Rem 209P	International	12.5	Win AA20	1,150	8,600
3/4	Win 209	International	12.5	PC 20	1,150	9,000
3/4	Win 209	International	12.0	Win AA20	1,150	9,000
3/4	CCI 209M	International	12.0	Win AA20	1,150	9,200
3/4	CCI 209M	International	12.2	PC 20	1,150	9,400
3/4	Rem 209P	International	13.7	PC 20	1,200	9,500
3/4	Win 209	International	13.2	PC 20	1,200	10,200
3/4	Win 209	International	13.2	Win AA20	1,200	10,400
3/4	Rem 209P	International	13.6	Win AA20	1,200	10,600
3/4	CCI 209M	International	13.1	Win AA20	1,200	10,700
3/4	CCI 209M	International	13.0	PC 20	1,200	10,800
3/4	Win 209	International	14.2	PC 20	1,250	11,800
7/8	Rem 209P	Unique	15.5	Orange Duster	1,155	7,700
7/8	Rem 209P	Unique	15.5	CB1078-20	1,155	9,500
7/8	Rem 209P	Herco	16.0	Win AA20F1	1,155	9,515
7/8	Rem 209P	Herco	16.0	CB1078-20	1,155	9,830
7/8	Rem 209P	Herco	16.0	Fed 20S1	1,155	10,000
7/8	Rem 209P	Unique	15.5	Rem RXP20	1,155	10,000
7/8	Rem 209P	Unique	15.5	Fed 20S1	1,155	10,000

Remington Premier, STS, RXP Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Fio 616	Herco	16.5	Rem RXP20	1,155	10,100
7/8	Win 209	Herco	16.5	Rem RXP20	1,155	10,200
7/8	Win 209	Unique	15.5	Rem RXP20	1,155	10,300
7/8	CCI 209M	Herco	16.5	Rem RXP20	1,155	10,500
7/8	Fio 616	Unique	16.0	Rem RXP20	1,155	10,700
7/8	CCI 209M	Unique	15.5	Rem RXP20	1,155	11,000
7/8	Fed 209A	PB	15.0	Fed 20S1	1,160	11,900
7/8	Rem 209P	PB	15.5	Fed 20S1	1,185	11,800
7/8	Fed 209A	PB	15.5	Windjammer	1,185	11,900
7/8	Fed 209A	800-X	16.0	Rem RXP20	1,190	9,100
7/8	Win 209	800-X	16.0	Windjammer	1,190	9,500
7/8	Rem 209P	SR7625	17.0	Rem RXP20	1,190	10,100
7/8	Win 209	PB	16.0	Rem RXP20	1,190	11,100
7/8	Win 209	PB	16.0	Win AA20F1	1,190	11,100
7/8	Fed 209A	SR7625	16.5	Fed 20S1	1,190	12,000
7/8	Rem 209P	SR4756	18.5	Win AA20F1	1,195	9,500
7/8	Rem 209P	800-X	16.0	Fed 20S1	1,195	9,600
7/8	Win 209	SR7625	17.0	Rem RXP20	1,195	10,300
7/8	Fed 209A	SR4756	17.5	Rem SP20	1,195	10,600
7/8	Rem 209P	PB	16.0	Rem RXP20	1,195	11,000
7/8	Rem 209P	SR7625	17.0	Fed 20S1	1,195	11,100
7/8	Rem 209P	PB	16.0	Win AA20F1	1,195	11,400
7/8	Fed 209A	SR7625	16.5	CB1078-20	1,195	11,400
7/8	Fed 209A	PB	16.0	Rem RXP20	1,195	11,600
7/8	Win 209	PB	16.0	CB1078-20	1,195	11,700
7/8	Rem 209P	PB	16.0	CB1078-20	1,195	11,800
7/8	Rem 209P	Unique	17.5	Orange Duster	1,200	8,100
7/8	Rem 209P	800-X	16.5	Rem RXP20	1,200	9,100
7/8	CCI 209	Herco	17.5	Rem RXP20	1,200	9,400
7/8	Fed 209A	800-X	16.0	Windjammer	1,200	9,500
7/8	Win 209	800-X	16.0	Fed 20S1	1,200	9,600
7/8	Rem 209P	Herco	17.5	CB1078-20	1,200	9,825
7/8	CCI 209	Unique	16.5	Rem RXP20	1,200	9,900
7/8	Rem 209P	Universal	15.8	Rem RXP20	1,200	9,900
7/8	Rem 209P	Herco	17.0	Windjammer	1,200	10,100
7/8	Rem 209	Herco	16.5	Rem RXP20	1,200	10,200
7/8	Rem 209P	Unique	16.5	Hor Versalite	1,200	10,200
7/8	Rem 209P	Herco	17.5	Lage Uniwad	1,200	10,300
7/8	Rem 209P	Herco	17.5	Hor Versalite	1,200	10,400
7/8	Rem 209P	Unique	16.0	Windjammer	1,200	10,400
7/8	Rem 209P	Unique	16.5	Lage Uniwad	1,200	10,400
7/8	CCI 209SC	Universal	15.5	Rem RXP20	1,200	10,400
7/8	Win 209	Universal	16.0	Rem RXP20	1,200	10,400
7/8	Rem 209P	Herco	17.5	Win AA20F1	1,200	10,430
7/8	Rem 209P	Herco	17.0	Fed 20S1	1,200	10,500
7/8	Rem 209P	Universal	15.6	Win AA20F1	1,200	10,500
7/8	Rem 209P	Herco	17.0	Rem RXP20	1,200	10,600
7/8	Win 209	Herco	17.0	Rem RXP20	1,200	10,600

Hull #40 (Continued)
20 Gauge 2 ¾"
Hull I.D. Page 98
Reference Notes Page 116

Remington Premier, STS, RXP Plastic Target Shell

20

20 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209P	Unique	16.5	CB1078-20	1,200	10,600
7/8	Rem 209P	Universal	16.0	Windjammer	1,200	10,600
7/8	Fed 209	Herco	16.5	Rem RXP20	1,200	10,700
7/8	Fio 616	Herco	17.0	Rem RXP20	1,200	10,700
7/8	Rem 209P	Herco	17.0	Win AA20	1,200	10,700
7/8	Rem 209P	Unique	16.5	Rem RXP20	1,200	10,700
7/8	Rem 209P	International	14.0	RXP20	1,200	10,700
7/8	CCI 209SC	Universal	15.2	Fed 20S1	1,200	10,700
7/8	CCI 209SC	Universal	15.4	Win AA20F1	1,200	10,700
7/8	CCI 209SC	Universal	15.4	Windjammer	1,200	10,700
7/8	Fed 209A	Universal	15.4	Rem RXP20	1,200	10,700
7/8	Rem 209P	Universal	16.0	Fed 20S1	1,200	10,700
7/8	Rem 209	Unique	16.5	Rem RXP20	1,200	10,800
7/8	CCI 209M	Herco	17.0	Rem RXP20	1,200	10,800
7/8	Rem 209P	Unique	16.5	Fed 20S1	1,200	10,800
7/8	Win 209	SR7625	17.0	Windjammer	1,200	10,800
7/8	Win 209	Universal	15.5	Fed 20S1	1,200	10,800
7/8	Win 209	Universal	16.0	Windjammer	1,200	10,800
7/8	Rem 209	Herco	16.5	Hor Versalite	1,200	10,900
7/8	Win 209	Herco	17.5	Rem RXP20	1,200	10,900
7/8	CCI 209M	Unique	16.5	Rem RXP20	1,200	10,900
7/8	Rem 209P	Unique	16.5	Win AA20	1,200	10,900
7/8	Rem 209P	Unique	16.0	Win AA20F1	1,200	11,000
7/8	Win 209	International	14.0	PC 20	1,200	11,000
7/8	Rem 209	Unique	16.5	Win AA20	1,200	11,200
7/8	Fio 616	Unique	16.5	Rem RXP20	1,200	11,200
7/8	Fed 209A	Universal	15.0	Win AA20F1	1,200	11,200
7/8	CCI 209M	Herco	17.5	Rem RXP20	1,200	11,300
7/8	CCI 209M	Unique	16.0	Rem RXP20	1,200	11,300
7/8	Win 209	Unique	16.5	Rem RXP20	1,200	11,300
7/8	Fed 209A	SR7625	16.5	Windjammer	1,200	11,400
7/8	Fed 209	Unique	16.0	Rem RXP20	1,200	11,500
7/8	Win 209	PB	16.0	Windjammer	1,200	11,700
7/8	Win 209	International	14.0	Win AA20	1,200	11,900
7/8	Fed 209A	Universal	15.0	Fed 20S1	1,200	11,900
7/8	Win 209	WSF	17.0	Win AA20	1,200	10,500
7/8	CCI 209	WSF	17.0	Win AA20	1,200	10,500
7/8	CCI 209	WSF	17.5	Rem RXP20	1,200	10,500
7/8	Win 209	WSF	17.5	Rem RXP20	1,200	10,600
7/8	Win 209	WSF	17.0	Rem RXP20	1,200	10,700
7/8	CCI 209	WSF	17.5	Fed 20S1	1,200	11,100
7/8	Win 209	WSF	16.5	Win AA20	1,200	11,200
7/8	Win 209	WSF	17.0	Fed 20S1	1,200	11,300
7/8	CCI 209	WSF	16.5	Win AA20	1,200	11,300
7/8	CCI 209	WSF	16.5	Fed 20S1	1,200	11,400
7/8	CCI 209	WSF	17.5	Rem RXP20	1,200	9,700
7/8	Rem 209P	800-X	16.0	CB1078-20	1,205	9,500
7/8	Win 209	800-X	16.0	CB1078-20	1,205	9,600

Remington Premier, STS, RXP Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209P	SR4756	18.5	Rem SP20	1,205	10,200
7/8	Win 209	SR4756	18.5	Rem SP20	1,205	10,300
7/8	Rem 209P	SR7625	17.0	CB1078-20	1,205	11,000
7/8	Win 209	SR7625	17.0	CB1078-20	1,205	11,100
7/8	Fed 209A	SR7625	16.5	Win AA20	1,205	12,000
7/8	Rem 209P	800-X	16.5	Windjammer	1,210	9,500
7/8	Win 209	800-X	16.5	Rem RXP20	1,210	9,500
7/8	Fed 209A	800-X	16.0	Fed 20S1	1,210	10,000
7/8	Fed 209A	SR7625	17.0	Rem RXP20	1,210	11,000
7/8	Rem 209P	SR7625	17.0	Windjammer	1,210	11,000
7/8	Rem 209P	PB	16.0	Windjammer	1,210	11,700
7/8	Win 209	SR7625	17.0	Fed 20S1	1,210	11,800
7/8	Fed 209A	PB	16.0	Win AA20F1	1,210	11,900
7/8	Fed 209A	800-X	16.0	CB1078-20	1,215	9,900
7/8	Rem 209P	Universal	16.7	Rem RXP20	1,225	10,700
7/8	CCI 209SC	Universal	15.9	Win AA20F1	1,225	10,900
7/8	CCI 209SC	Universal	16.0	Rem RXP20	1,225	11,000
7/8	Rem 209P	Universal	16.0	Win AA20F1	1,225	11,000
7/8	Rem 209P	Universal	16.2	Fed 20S1	1,225	11,100
7/8	Rem 209P	Universal	16.5	Windjammer	1,225	11,200
7/8	Fed 209A	Universal	15.9	Rem RXP20	1,225	11,300
7/8	CCI 209SC	Universal	15.8	Windjammer	1,225	11,400
7/8	Win 209	Universal	16.7	Rem RXP20	1,225	11,400
7/8	CCI 209SC	Universal	15.6	Fed 20S1	1,225	11,500
7/8	Win 209	Universal	16.0	Fed 20S1	1,225	11,500
7/8	Win 209	Universal	16.5	Windjammer	1,225	11,500
7/8	Fed 209A	Universal	15.5	Win AA20F1	1,225	12,000
7/8	Win 209	Longshot	18.8	PC 20	1,250	8,700
7/8	Win 209	Longshot	18.4	Windjammer	1,250	9,000
7/8	Win 209	Longshot	18.2	Rem RXP20	1,250	9,100
7/8	CCI 209M	Longshot	17.7	PC 20	1,250	9,500
7/8	CCI 209M	Longshot	17.7	Rem RXP20	1,250	9,500
7/8	Rem 209P	Longshot	17.7	PC 20	1,250	9,500
7/8	Rem 209P	Longshot	17.6	Rem RXP20	1,250	9,600
7/8	Win 209	Longshot	17.9	Win AA20	1,250	9,900
7/8	CCI 209M	Longshot	17.3	Windjammer	1,250	10,000
7/8	Win 209	Longshot	18.1	Fed 20S1	1,250	10,000
7/8	Fed 209A	Longshot	17.6	Rem RXP20	1,250	10,100
7/8	Rem 209P	Longshot	17.8	Windjammer	1,250	10,100
7/8	Fed 209A	Longshot	17.6	PC 20	1,250	10,200
7/8	Rem 209P	Longshot	17.5	Fed 20S1	1,250	10,200
7/8	Rem 209P	Longshot	17.3	Win AA20	1,250	10,300
7/8	CCI 209M	Longshot	16.9	Fed 20S1	1,250	10,400
7/8	Fed 209A	Longshot	17.2	Windjammer	1,250	10,400
7/8	Fed 209A	Longshot	17.1	Win AA20	1,250	10,600
7/8	CCI 209M	Longshot	17.0	Win AA20	1,250	10,700
7/8	Fed 209A	Longshot	17.5	Fed 20S1	1,250	10,800
7/8	Rem 209P	Universal	16.5	Win AA20F1	1,250	11,200

Hull #40 (Continued)

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

Remington Premier, STS, RXP Plastic Target Shell

20

20 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	CCI 209SC	Universal	16.4	Rem RXP20	1,250	11,300
7/8	Rem 209P	Universal	16.5	Fed 20S1	1,250	11,400
7/8	CCI 209SC	Universal	16.2	Win AA20F1	1,250	11,900
7/8	Win 209	Longshot	19.8	PC 20	1,300	10,100
7/8	Win 209	Longshot	19.4	Rem RXP20	1,300	10,300
7/8	Win 209	Longshot	19.4	Windjammer	1,300	10,500
7/8	CCI 209M	Longshot	18.4	PC 20	1,300	10,600
7/8	Rem 209P	Longshot	18.8	PC 20	1,300	10,700
7/8	CCI 209M	Longshot	18.7	Rem RXP20	1,300	10,800
7/8	Win 209	Longshot	19.1	Fed 20S1	1,300	11,100
7/8	Fed 209A	Longshot	18.6	PC 20	1,300	11,200
7/8	Fed 209A	Longshot	18.6	Rem RXP20	1,300	11,200
7/8	Rem 209P	Longshot	18.9	Rem RXP20	1,300	11,200
7/8	Rem 209P	Longshot	18.9	Windjammer	1,300	11,200
7/8	Win 209	Longshot	19.0	Win AA20	1,300	11,200
7/8	CCI 209M	Longshot	18.1	Windjammer	1,300	11,300
7/8	CCI 209M	Longshot	18.0	Fed 20S1	1,300	11,600
7/8	Rem 209P	Longshot	18.4	Fed 20S1	1,300	11,600
7/8	CCI 209M	Longshot	18.1	Win AA20	1,300	11,700
7/8	Fed 209A	Longshot	18.3	Win AA20	1,300	11,700
7/8	Rem 209P	Longshot	18.5	Win AA20	1,300	11,800
7/8	Fed 209A	Longshot	18.5	Windjammer	1,300	11,900
7/8	Fed 209A	Longshot	18.3	Fed 20S1	1,300	12,000
7/8	Win 209	Longshot	20.7	PC 20	1,350	11,300
7/8	Win 209	Longshot	20.6	Rem RXP20	1,350	11,500
7/8	Rem 209P	Longshot	19.9	PC 20	1,350	11,900
7/8	CCI 209M	Longshot	19.6	PC 20	1,350	12,000
7/8	CCI 209M	Longshot	19.6	Rem RXP20	1,350	12,000
7/8	Win 209	Longshot	20.1	Fed 20S1	1,350	12,000
7/8	Win 209	Longshot	20.3	Windjammer	1,350	12,000
1	Fed 209A	SR7625	14.5	Rem SP20	1,055	11,500
1	Fed 209A	SR7625	14.5	Win AA20F1	1,060	11,400
1	Rem 209P	Herco	14.5	Win AA20F1	1,075	11,000
1	Win 209	SR7625	16.0	Rem SP20	1,105	11,400
1	Rem 209P	SR7625	16.0	Rem SP20	1,105	11,600
1	Win 209	SR7626	16.0	Win AA20F1	1,110	11,800
1	Fed 209A	800-X	15.0	Fed 20S1	1,115	11,400
1	Rem 209P	SR7625	16.5	Win AA20F1	1,125	11,800
1	Fed 209A	SR4756	17.0	Rem SP20	1,125	11,800
1	Fed 209A	800-X	15.5	Win AA20F1	1,150	11,800
1	Rem 209P	Blue Dot	21.5	Rem SP20	1,155	9,000
1	Rem 209P	Blue Dot	21.5	Win AA20F1	1,155	9,000
1	CCI 209	Blue Dot	22.0	Rem SP20	1,155	9,500
1	Fio 616	Blue Dot	22.5	Rem SP20	1,155	9,800
1	CCI 209M	Blue Dot	21.5	Rem SP20	1,155	10,500
1	Win 209	Blue Dot	21.5	Rem SP20	1,155	10,600
1	Rem 209P	Blue Dot	21.5	Win AA20F1	1,155	10,800
1	Rem 209P	Herco	17.5	Win AA20F1	1,155	11,500

Remington Premier, STS, RXP Plastic Target Shell

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Rem 209P	800-X	16.0	Fed 20S1	1,160	11,200
1	Win 209	800-X	16.0	Fed 20S1	1,160	11,700
1	Win 209	SR4756	18.5	Rem SP20	1,160	11,700
1	Win 209	Longshot	16.3	Win AA20F1	1,165	9,900
1	Win 209	Longshot	16.0	Rem SP20	1,165	10,400
1	Fed 209	Blue Dot	21.5	Rem SP20	1,165	10,500
1	CCI 209M	Blue Dot	22.0	Rem SP20	1,165	10,500
1	Rem 209P	HS-6	20.0	Fed 20S1	1,165	10,900
1	Rem 209P	HS-6	20.4	Win AA20F1	1,165	10,900
1	Rem 209P	HS-6	20.8	Windjammer	1,165	10,900
1	Rem 209P	Longshot	15.9	Win AA20F1	1,165	10,900
1	CCI 209M	Longshot	16.5	Win AA20F1	1,165	11,000
1	Rem 209	Blue Dot	21.5	Win AA20F1	1,165	11,100
1	Fed 209A	HS-6	19.5	Win AA20F1	1,165	11,100
1	Rem 209P	Longshot	16.0	Rem SP20	1,165	11,100
1	CCI 209	HS-6	19.6	Windjammer	1,165	11,200
1	Win 209	HS-6	20.0	Rem SP20	1,165	11,200
1	Win 209	HS-6	20.3	Win AA20F1	1,165	11,200
1	Win 209	HS-6	20.0	Windjammer	1,165	11,200
1	Fed 209A	Longshot	15.9	Win AA20F1	1,165	11,200
1	Win 209	Blue Dot	22.0	Rem SP20	1,165	11,300
1	CCI 209M	HS-6	19.7	Win AA20F1	1,165	11,300
1	Fed 209A	HS-6	19.5	Rem SP20	1,165	11,400
1	Rem 209	Blue Dot	21.0	Rem SP20	1,165	11,500
1	CCI 209	HS-6	20.5	Rem SP20	1,165	11,500
1	Win 209	HS-6	19.7	Fed 20S1	1,165	11,500
1	CCI 209M	HS-6	19.5	Fed 20S1	1,165	11,600
1	CCI 209M	Longshot	16.5	Rem SP20	1,165	11,700
1	CCI 209	HS-6	20.5	Win AA20F1	1,165	11,900
1	Fed 209A	800-X	16.0	Rem SP20	1,170	11,800
1	Rem 209P	SR4756	19.5	Rem SP20	1,185	11,500
1	Win 209	800-X	16.5	Win AA20F1	1,185	11,800
1	Win 209	800-X	17.0	Rem RXP20	1,200	11,800
1	Rem 209P	800-X	17.0	Win AA20F1	1,205	11,700
1	CCI 209	Blue Dot	23.0	Rem SP20	1,220	10,300
1	Fed 209	2400	29.5	Activ W32	1,220	10,500
1	CCI 209M	Blue Dot	22.5	Rem SP20	1,220	10,900
1	Rem 209P	Blue Dot	23.5	Win AA20F1	1,220	10,900
1	Fio 616	Blue Dot	23.5	Rem SP20	1,220	11,000
1	Win 209	Blue Dot	22.0	Rem SP20	1,220	11,100
1	Rem 209P	Blue Dot	24.0	Rem SP20	1,220	11,100
1	Rem 209P	HS-6	21.6	Win AA20F1	1,220	11,700
1	Rem 209P	800-X	17.5	Rem SP20	1,220	11,900
1	Fed 209A	Longshot	16.5	Win AA20F1	1,220	12,000
1	Rem 209P	Longshot	17.3	Win AA20F1	1,220	12,000
1	Win 209	Longshot	17.8	Rem SP20	1,220	12,000
1	Win 209	Longshot	18.0	Win AA20F1	1,220	12,000

Hull #41

20 Gauge 2 ¾"

Hull I.D. Page 99

Reference Notes Page 117

Winchester Compression Formed and (New) HS AA & AA-type Shell

20

20 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Rem 209P	International	12.8	Fio 20	1,150	8,100
3/4	Rem 209P	International	12.5	PC 20	1,150	9,000
3/4	Rem 209P	International	12.1	Win AA20	1,150	9,000
3/4	Win 209	International	12.3	Fio 20	1,150	9,000
3/4	CCI 209M	International	12.2	Fio 20	1,150	9,700
3/4	CCI 209M	International	12.1	Win AA20	1,150	10,100
3/4	Win 209	International	12.0	Win AA20	1,150	10,100
3/4	CCI 209M	International	12.3	PC 20	1,150	10,200
3/4	Win 209	International	12.2	PC 20	1,150	10,400
3/4	Rem 209P	International	13.8	Fio 20	1,200	10,200
3/4	Rem 209P	International	13.2	Win AA20	1,200	10,500
3/4	Win 209	International	12.9	Fio 20	1,200	10,500
3/4	CCI 209M	International	13.0	Fio 20	1,200	10,800
3/4	Rem 209P	International	14.0	PC 20	1,200	10,900
3/4	Win 209	International	13.0	PC 20	1,200	11,300
3/4	CCI 209M	International	12.7	Win AA20	1,200	11,500
3/4	Win 209	International	13.0	Win AA20	1,200	11,700
3/4	CCI 209M	International	13.1	PC 20	1,200	11,900
3/4	Rem 209P	International	14.5	Fio 20	1,250	10,900
3/4	Win 209	International	14.0	Fio 20	1,250	11,800
7/8	Win 209	Green Dot	11.2	Win AA20	1,050	11,000
7/8	Win 209	Green Dot	13.0	CB1078-20	1,100	11,200
7/8	Win 209	Unique	13.8	Win AA20	1,100	11,200
7/8	Win 209	Green Dot	12.5	Win AA20F1	1,100	11,300
7/8	Win 209	Unique	15.0	CB1078-20	1,155	10,200
7/8	CCI 209M	Unique	15.0	Win AA20	1,155	10,200
7/8	Win 209	Herco	16.0	CB1078-20	1,155	10,500
7/8	Win 209	Herco	16.0	Win AA20F1	1,155	10,960
7/8	Win 209	Unique	15.0	Win AA20F1	1,155	11,000
7/8	Win 209	Green Dot	13.5	PC 20	1,155	11,200
7/8	Rem 209P	Universal	15.8	Rem RXP20	1,200	9,800
7/8	Win 209	Universal	15.5	Win AA20	1,200	10,200
7/8	Rem 209P	International	14.0	Rem RXP20	1,200	10,800
7/8	Win 209	Herco	16.5	CB1078-20	1,200	11,000
7/8	Win 209	Universal	15.0	Rem RXP20	1,200	11,000
7/8	CCI 209SC	Universal	15.3	Rem RXP20	1,200	11,100
7/8	Rem 209P	Universal	15.5	PC 20	1,200	11,100
7/8	Win 209	Unique	15.5	Win AA20F1	1,200	11,170
7/8	Win 209	Unique	16.0	CB1078-20	1,200	11,200
7/8	Win 209	Unique	16.0	PC 20	1,200	11,200
7/8	Win 209	International	14.0	PC 20	1,200	11,200
7/8	Win 209	Herco	16.5	PC 20	1,200	11,300
7/8	Fed 209A	Universal	14.8	Rem RXP20	1,200	11,400
7/8	Rem 209P	Universal	15.3	Fed 20S1	1,200	11,500
7/8	CCI 209SC	Universal	15.5	PC 20	1,200	11,600
7/8	CCI 209SC	Universal	15.1	Win AA20F1	1,200	11,600
7/8	Rem 209P	Universal	15.3	Win AA20F1	1,200	11,600
7/8	Fed 209A	Universal	15.8	Windjammer	1,200	11,700

Winchester Compression Formed and (New) HS AA & AA-type Shell

20 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209P	Universal	16.0	Windjammer	1,200	11,700
7/8	Win 209	International	14.0	Win AA20	1,200	11,800
7/8	CCI 209SC	Universal	14.6	Fed 20S1	1,200	11,800
7/8	Win 209	Universal	15.0	Windjammer	1,200	11,800
7/8	CCI 209SC	Universal	15.5	Windjammer	1,200	11,900
7/8	Fed 209A	Universal	14.7	PC 20	1,200	11,900
7/8	Fed 209A	Universal	14.3	Fed 20S1	1,200	12,000
7/8	Fed 209A	Universal	14.6	Win AA20F1	1,200	12,000
7/8	Win 209	Universal	14.7	Fed 20S1	1,200	12,000
7/8	Win 209	Longshot	18.3	PC 20	1,250	9,600
7/8	CCI 209M	Longshot	17.7	Rem RXP20	1,250	9,800
7/8	Win 209	Longshot	18.4	Rem RXP20	1,250	9,800
7/8	Win 209	Longshot	18.4	Windjammer	1,250	10,100
7/8	Rem 209P	Longshot	17.7	Rem RXP20	1,250	10,400
7/8	Win 209	Longshot	17.6	Fed 20S1	1,250	10,600
7/8	Win 209	Longshot	17.8	Win AA20	1,250	10,600
7/8	CCI 209M	Longshot	17.6	Windjammer	1,250	10,700
7/8	Rem 209P	Longshot	17.9	Windjammer	1,250	10,700
7/8	Rem 209P	Longshot	17.6	Fed 20S1	1,250	10,800
7/8	CCI 209M	Longshot	17.2	Win AA20	1,250	10,900
7/8	Rem 209P	Longshot	17.9	PC 20	1,250	10,900
7/8	CCI 209M	Longshot	17.3	Fed 20S1	1,250	11,000
7/8	CCI 209M	Longshot	17.4	PC 20	1,250	11,000
7/8	Fed 209A	Longshot	17.8	PC 20	1,250	11,000
7/8	Rem 209P	Longshot	17.2	Win AA20	1,250	11,100
7/8	Fed 209A	Longshot	17.4	Windjammer	1,250	11,200
7/8	Fed 209A	Longshot	17.8	Rem RXP20	1,250	11,400
7/8	Fed 209A	Longshot	17.5	Fed 20S1	1,250	11,800
7/8	Fed 209A	Longshot	17.4	Win AA20	1,250	11,900
7/8	Win 209	Longshot	19.4	PC 20	1,300	10,600
7/8	Win 209	Longshot	19.3	Rem RXP20	1,300	10,700
7/8	Win 209	Longshot	19.1	Windjammer	1,300	11,000
7/8	CCI 209M	Longshot	18.5	Rem RXP20	1,300	11,200
7/8	Rem 209P	Longshot	18.7	Rem RXP20	1,300	11,400
7/8	Win 209	Longshot	18.6	Fed 20S1	1,300	11,400
7/8	Rem 209P	Longshot	18.6	PC 20	1,300	11,600
7/8	Win 209	Longshot	18.6	Win AA20	1,300	11,700
7/8	CCI 209M	Longshot	18.5	PC 20	1,300	11,800
7/8	Rem 209P	Longshot	18.4	Win AA20	1,300	11,800
7/8	CCI 209M	Longshot	18.0	Win AA20	1,300	11,900
7/8	Fed 209A	Longshot	18.4	PC 20	1,300	11,900
7/8	Rem 209P	Longshot	18.5	Windjammer	1,300	11,900
7/8	CCI 209M	Longshot	18.4	Windjammer	1,300	12,000
7/8	Fed 209A	Longshot	18.9	Rem RXP20	1,300	12,000
7/8	Fed 209A	Longshot	18.5	Windjammer	1,300	12,000
7/8	Rem 209P	Longshot	18.5	Fed 20S1	1,300	12,000
7/8	Win 209	Longshot	20.5	PC 20	1,350	11,600
7/8	Win 209	Longshot	20.0	Windjammer	1,350	12,000

Hull #41 (Continued)
20 Gauge 2 ¾"
Hull I.D. Page 99
Reference Notes Page 117

Winchester Compression Formed and (New) HS AA & AA-type Shell

20
20 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	HS-7	23.5	Rem SP20	1,165	9,400
1	Win 209	Herco	16.5	Rem RXP20	1,165	9,600
1	Win 209	Herco	16.5	Rem SP20	1,165	10,000
1	Win 209	HS-6	21.5	Win AA20F1	1,165	10,000
1	Win 209	HS-6	23.0	Rem SP20	1,165	10,100
1	Win 209	Longshot	16.5	Rem SP20	1,165	10,700
1	Win 209	Longshot	15.7	Win AA20F1	1,165	10,900
1	CCI 209M	Longshot	16.7	Rem SP20	1,165	11,700
1	Rem 209P	HS-6	19.5	Win AA20F1	1,165	11,800
1	Rem 209P	Longshot	16.3	Rem SP20	1,165	11,800
1	Rem 209P	Longshot	15.8	Win AA20F1	1,165	11,800
1	Rem 209P	HS-6	19.8	Rem SP20	1,165	11,900
1	CCI 209M	Longshot	15.5	Win AA20F1	1,165	11,900
1	Fed 209A	Longshot	15.5	Win AA20F1	1,165	11,900
1	Win 209	HS-7	24.5	Rem SP20	1,220	10,600
1	Win 209	HS-6	24.0	Rem SP20	1,220	10,800
1	Win 209	HS-6	22.5	Win AA20F1	1,220	10,900
1	Win 209	Blue Dot	23.0	Rem RXP20	1,220	11,300
1	Win 209	Blue Dot	23.5	Rem SP20	1,220	11,400
1	Win 209	Blue Dot	23.0	Win AA20F1	1,220	11,500
1	Win 209	Longshot	18.1	Rem SP20	1,220	12,000
1	Win 209	Longshot	17.2	Win AA20F1	1,220	12,000

Hull #43
28 Gauge 2 ¾"
Hull I.D. Page 99
Reference Notes Page 118

Federal Plastic Target Shells (With Paper Basewad)

28
28 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Fed 209A	PB	13.0	Rem PT28	1,160	12,300
3/4	Fed 209A	PB	13.0	CB1034-28	1,165	12,100
3/4	Fed 209A	PB	13.0	Win AA28	1,165	12,400
3/4	Rem 209P	SR4756	17.0	Rem PT28	1,170	10,300
3/4	Win 209	PB	14.0	Fed 28S1	1,185	12,500
3/4	Rem 209P	SR4756	16.0	Blue PC	1,185	9,600
3/4	Rem 209P	SR7625	14.5	Win AA28	1,185	10,500
3/4	Win 209	SR7625	14.5	Win AA28	1,185	10,800
3/4	Fed 209A	SR7625	14.0	Fed 28S1	1,185	12,000
3/4	Win 209	800-X	13.5	CB1034-28	1,190	9,800
3/4	Win 209	800-X	13.5	Blue PC	1,190	9,900
3/4	Win 209	800-X	13.5	Rem PT28	1,190	10,100
3/4	Rem 209P	SR7625	15.0	Rem PT28	1,190	10,200
3/4	Win 209	SR4756	16.0	Rem PT28	1,190	10,500
3/4	Rem 209P	PB	14.0	Fed 28S1	1,190	12,200
3/4	Rem 209P	SR4756	16.5	Fed 28S1	1,195	9,800

Federal Plastic Target Shells (With Paper Basewad)

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Rem 209P	800-X	14.0	Rem PT28	1,195	9,900
3/4	Fed 209A	800-X	13.5	Win AA28	1,195	10,100
3/4	Win 209	SR4756	16.0	Fed 28S1	1,195	10,600
3/4	Fed 209A	SR7625	15.5	Rem PT28	1,195	11,800
3/4	Fed 209A	SR7625	14.0	Blue PC	1,195	11,900
3/4	Fed 209A	SR7625	14.0	CB1034-28	1,195	12,000
3/4	Rem 209P	800-X	14.0	Blue PC	1,200	9,600
3/4	Fed 209A	800-X	13.5	CB1034-28	1,200	10,000
3/4	CCI 209SC	Universal	14.5	Rem PT28	1,200	10,000
3/4	Win 209	Universal	14.5	Rem PT28	1,200	10,200
3/4	Win 209	SR4756	16.0	Blue PC	1,200	10,300
3/4	Win 209	800-X	13.5	Fed 28S1	1,200	10,500
3/4	CCI 209SC	Universal	14.3	Fed 28S1	1,200	10,600
3/4	Win 209	Universal	14.5	Fed 28S1	1,200	10,700
3/4	Win 209	Universal	14.8	Blue PC	1,200	10,700
3/4	Win 209	SR7625	15.0	Rem PT28	1,200	11,100
3/4	Fed 209A	SR4756	15.5	Rem PT28	1,200	11,400
3/4	Fed 209A	Universal	14.2	Rem PT28	1,200	11,400
3/4	Rem 209P	PB	14.5	Blue PC	1,200	11,500
3/4	Rem 209P	PB	14.5	Rem PT28	1,200	11,700
3/4	Rem 209P	800-X	14.0	CB1034-28	1,205	9,800
3/4	Rem 209P	SR7625	15.0	Blue PC	1,205	10,100
3/4	Fed 209A	800-X	13.5	Rem PT28	1,205	10,700
3/4	Win 209	SR7625	15.0	Blue PC	1,205	10,900
3/4	Fed 209A	800-X	13.5	Fed 28S1	1,205	11,000
3/4	Win 209	SR7625	15.0	Fed 28S1	1,205	11,200
3/4	Rem 209P	PB	14.5	Win AA28	1,205	11,400
3/4	Fed 209A	SR4756	15.5	Fed 28S1	1,205	11,900
3/4	Win 209	PB	14.5	Rem PT28	1,205	12,100
3/4	Win 209	800-X	14.0	Win AA28	1,210	10,000
3/4	Rem 209P	800-X	14.0	Fed 28S1	1,210	10,400
3/4	Fed 209A	SR4756	15.5	Blue PC	1,210	11,400
3/4	Win 209	PB	14.5	Blue PC	1,210	12,000
3/4	Fed 209A	800-X	13.5	Blue PC	1,215	10,600
3/4	Win 209	PB	14.5	Win AA28	1,215	11,900
3/4	Fed 209A	SR7625	14.5	Win AA28	1,215	12,300
3/4	Win 209	Longshot	15.8	Rem PT28	1,225	9,600
3/4	Rem 209P	Longshot	15.1	Rem PT28	1,225	9,800
3/4	CCI 209M	Longshot	15.5	Rem PT28	1,225	9,900
3/4	CCI 209M	Longshot	15.3	Fed 28S1	1,225	10,000
3/4	Win 209	Longshot	15.7	Fed 28S1	1,225	10,200
3/4	Fed 209A	Longshot	15.3	Rem PT28	1,225	10,400
3/4	Rem 209P	Longshot	15.1	Fed 28S1	1,225	10,500
3/4	CCI 209SC	Universal	15.0	Rem PT28	1,225	10,900
3/4	Win 209	Universal	15.2	Rem PT28	1,225	10,900
3/4	Fed 209A	Longshot	15.2	Fed 28S1	1,225	11,000
3/4	Win 209	Universal	15.2	Blue PC	1,225	11,300
3/4	CCI 209SC	Universal	15.1	Fed 28S1	1,225	11,400

Hull #43 (Continued)

28 Gauge 2 ¾"

Hull I.D. Page 99

Reference Notes Page 118

Federal Plastic Target Shells (With Paper Basewad)

28

28 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Win 209	Universal	15.0	Fed 28S1	1,225	11,500
3/4	Win 209	Longshot	16.2	Rem PT28	1,250	10,000
3/4	Rem 209P	Longshot	15.6	Rem PT28	1,250	10,400
3/4	CCI 209M	Longshot	15.8	Fed 28S1	1,250	10,600
3/4	CCI 209M	Longshot	15.9	Rem PT28	1,250	10,600
3/4	Win 209	Longshot	16.1	Fed 28S1	1,250	10,800
3/4	Fed 209A	Longshot	15.8	Rem PT28	1,250	11,000
3/4	CCI 209SC	Universal	15.5	Rem PT28	1,250	11,100
3/4	Rem 209P	Longshot	15.6	Fed 28S1	1,250	11,100
3/4	Fed 209A	Longshot	15.6	Fed 28S1	1,250	11,600
3/4	Win 209	Universal	15.8	Rem PT28	1,250	11,700
3/4	CCI 209SC	Universal	15.3	Fed 28S1	1,250	11,800
3/4	Win 209	Universal	15.6	Blue PC	1,250	11,900
3/4	Win 209	Universal	15.5	Fed 28S1	1,250	12,400
3/4	Win 209	Longshot	16.6	Rem PT28	1,275	10,400
3/4	Rem 209P	Longshot	16.1	Rem PT28	1,275	11,100
3/4	CCI 209M	Longshot	16.3	Fed 28S1	1,275	11,200
3/4	CCI 209M	Longshot	16.3	Rem PT28	1,275	11,200
3/4	Fed 209A	Longshot	16.2	Rem PT28	1,275	11,400
3/4	Win 209	Longshot	16.5	Fed 28S1	1,275	11,400
3/4	Rem 209P	Longshot	16.0	Fed 28S1	1,275	11,500
3/4	Fed 209A	Longshot	15.9	Fed 28S1	1,275	12,000
3/4	Win 209	Longshot	17.0	Rem PT28	1,300	10,800
3/4	CCI 209M	Longshot	16.6	Rem PT28	1,300	11,700
3/4	CCI 209M	Longshot	16.8	Fed 28S1	1,300	11,800
3/4	Rem 209P	Longshot	16.6	Rem PT28	1,300	11,800
3/4	Win 209	Longshot	16.9	Fed 28S1	1,300	11,900
3/4	Fed 209A	Longshot	16.7	Rem PT28	1,300	12,000
3/4	Rem 209P	Longshot	16.5	Fed 28S1	1,300	12,000
13/16	Win 209	Longshot	15.7	Rem PT28	1,200	10,200
13/16	CCI 209M	Longshot	15.3	Rem PT28	1,200	10,600
13/16	Fed 209A	Longshot	15.2	Rem PT28	1,200	10,900
13/16	Rem 209P	Longshot	15.5	Rem PT28	1,200	11,000
13/16	Win 209	Longshot	15.2	Fed 28S1	1,200	11,000
13/16	CCI 209SC	Universal	15.1	Rem PT28	1,200	11,100
13/16	CCI 209M	Longshot	15.5	Fed 28S1	1,200	11,400
13/16	Win 209	Universal	14.9	Rem PT28	1,200	11,600
13/16	Rem 209P	Longshot	14.7	Fed 28S1	1,200	11,800
13/16	Fed 209A	Longshot	14.9	Fed 28S1	1,200	11,900
13/16	Win 209	Universal	14.9	Blue PC	1,200	12,000
13/16	CCI 209SC	Universal	14.9	Fed 28S1	1,200	12,100
13/16	Win 209	Universal	14.9	Fed 28S1	1,200	12,300
13/16	CCI 209SC	Universal	15.0	Blue PC	1,200	12,400
13/16	Win 209	Longshot	16.1	Rem PT28	1,225	10,900
13/16	CCI 209M	Longshot	15.8	Rem PT28	1,225	11,300
13/16	Rem 209P	Longshot	15.9	Rem PT28	1,225	11,400
13/16	Fed 209A	Longshot	15.6	Rem PT28	1,225	11,500
13/16	Rem 209P	Longshot	15.0	Fed 28S1	1,225	12,200

28 Gauge 2 3/4" Lead Shot Load Data

Federal Plastic Target Shells (With Paper Basewad)

(Continued) **Hull #43**

28 Gauge 2 3/4"

Hull I.D. Page 99
Reference Notes Page 118

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
13/16	Win 209	Longshot	15.5	Fed 28S1	1,225	12,300
13/16	Fed 209A	Longshot	15.4	Fed 28S1	1,225	12,500
13/16	Win 209	Longshot	16.5	Rem PT28	1,250	11,500
13/16	Rem 209P	Longshot	16.3	Rem PT28	1,250	11,800
13/16	CCI 209M	Longshot	16.5	Rem PT28	1,250	12,000
13/16	Fed 209A	Longshot	16.0	Rem PT28	1,250	12,200
7/8	Fed 209A	Blue Dot	17.5	Win AA28	1,200	8,700
7/8	CCI 109	Unique	13.5	Rem SP28	1,200	9,400
7/8	Fed 209A	Blue Dot	17.5	Fed 28S1A	1,200	9,600
7/8	CCI 109	Blue Dot	18.5	Rem SP28	1,200	9,800
7/8	Fed 209A	Blue Dot	18.0	Rem SP28	1,200	9,900
7/8	CCI 109	Green Dot	13.0	Rem SP28	1,200	10,000
7/8	CCI 109	Herco	14.5	Rem SP28	1,200	10,000
7/8	Fed 209A	Herco	13.0	Rem SP28	1,200	10,100
7/8	CCI 109	Unique	14.0	Win AA28	1,200	10,400
7/8	CCI 109	Herco	15.0	Win AA28	1,200	10,500
7/8	Fed 209A	Unique	13.5	Win AA28	1,200	10,500
7/8	Win 209	HS-7	19.2	Blue PC	1,200	10,700
7/8	Fed 209A	Herco	14.0	Win AA28	1,200	10,900
7/8	Rem 209P	HS-7	19.5	Rem PT28	1,200	10,900
7/8	Fed 209A	Unique	13.0	Rem SP28	1,200	11,200
7/8	Fed 209A	Unique	13.5	Fed 28S1A	1,200	11,600
7/8	Fed 209A	Herco	14.0	Fed 28S1A	1,200	11,700
7/8	Fed 209A	Green Dot	12.5	Rem SP28	1,200	11,800
7/8	Fed 209A	Blue Dot	20.0	Rem SP28	1,295	10,900

28 Gauge 2 3/4" Lead Shot Load Data

Remington One Piece Plastic Premier STS Shell

Hull #44

28 Gauge 2 3/4"

Hull I.D. Page 100
Reference Notes Page 118

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Rem 209P	Blue Dot	18.5	PC Blue	1,200	9,600
3/4	Rem 209P	Herco	14.8	Red Duster	1,200	9,610
3/4	Rem 209P	Unique	14.0	Red Duster	1,200	9,610
3/4	CCI 209SC	HS-6	17.0	Win AA28	1,200	10,300
3/4	Rem 209P	HS-6	17.1	Win AA28	1,200	10,400
3/4	Win 209	HS-6	17.0	Win AA28	1,200	10,700
3/4	Rem 209P	Herco	14.5	PC Blue	1,200	10,800
3/4	CCI 209SC	HS-6	17.0	Rem PT28	1,200	10,900
3/4	Fed 209A	HS-6	16.7	Win AA28	1,200	11,000
3/4	Rem 209P	HS-6	17.1	Rem PT28	1,200	11,000
3/4	Rem 209P	Unique	14.0	PC Blue	1,200	11,200
3/4	Win 209	Universal	13.8	Win AA28	1,200	11,500

Hull #44 (Continued) Remington One Piece Plastic Premier STS Shell

28 Gauge 2 ¾"

Hull I.D. Page 100

Reference Notes Page 118

28

28 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Win 209	HS-6	17.0	Rem PT28	1,200	11,500
3/4	CCI 209SC	Universal	13.8	Win AA28	1,200	11,600
3/4	Rem 209P	Universal	13.9	Win AA28	1,200	11,700
3/4	Fed 209A	HS-6	16.7	Rem PT28	1,200	11,700
3/4	Rem 209P	Universal	13.6	Blue PC	1,200	12,000
3/4	Rem 209P	Universal	13.8	Rem PT28	1,200	12,000
3/4	CCI 209SC	Universal	13.8	Rem PT28	1,200	12,100
3/4	Win 209	Universal	13.8	Rem PT28	1,200	12,100
3/4	CCI 209SC	Universal	13.6	Blue PC	1,200	12,200
3/4	Fed 209A	Universal	13.5	Win AA28	1,200	12,200
3/4	Win 209	Universal	13.5	Blue PC	1,200	12,400
3/4	Win 209	Longshot	14.5	Win AA28	1,225	10,700
3/4	Win 209	Longshot	14.9	Blue PC	1,225	10,900
3/4	Win 209	Longshot	14.7	Rem PT28	1,225	10,900
3/4	Rem 209P	Longshot	14.3	Win AA28	1,225	11,000
3/4	CCI 209M	Longshot	14.1	Rem PT28	1,225	11,100
3/4	Fed 209A	Longshot	14.2	Win AA28	1,225	11,200
3/4	Rem 209P	Longshot	14.5	Blue PC	1,225	11,200
3/4	Rem 209P	Longshot	14.3	Rem PT28	1,225	11,300
3/4	CCI 209M	Longshot	14.4	Win AA28	1,225	11,500
3/4	Fed 209A	Longshot	14.0	Rem PT28	1,225	11,700
3/4	CCI 209M	Longshot	14.4	Blue PC	1,225	12,000
3/4	Fed 209A	Longshot	14.3	Blue PC	1,225	12,000
3/4	Win 209	Longshot	15.1	Win AA28	1,250	11,200
3/4	Win 209	Longshot	15.3	Rem PT28	1,250	11,300
3/4	Rem 209P	Longshot	14.8	Win AA28	1,250	11,600
3/4	Win 209	Longshot	15.4	Blue PC	1,250	11,600
3/4	Rem 209P	Longshot	15.0	Blue PC	1,250	11,800
3/4	CCI 209M	Longshot	14.6	Rem PT28	1,250	11,900
3/4	CCI 209M	Longshot	14.9	Win AA28	1,250	11,900
3/4	Fed 209A	Longshot	14.7	Win AA28	1,250	12,000
3/4	Rem 209P	Longshot	14.9	Rem PT28	1,250	12,000
3/4	CCI 209M	Longshot	14.9	Blue PC	1,250	12,300
3/4	Fed 209A	Longshot	15.3	Rem PT28	1,250	12,500
3/4	Win 209	Longshot	15.6	Win AA28	1,275	11,600
3/4	Win 209	Longshot	15.9	Rem PT28	1,275	11,900
3/4	Rem 209P	Longshot	15.2	Win AA28	1,275	12,000
3/4	Win 209	Longshot	15.8	Blue PC	1,275	12,100
3/4	Rem 209P	Longshot	15.5	Blue PC	1,275	12,300
3/4	CCI 209M	Longshot	15.4	Win AA28	1,275	12,400
3/4	Rem 209P	Longshot	15.4	Rem PT28	1,275	12,500
3/4	Win 209	Longshot	16.2	Win AA28	1,300	12,200
3/4	Win 209	Longshot	16.4	Rem PT28	1,300	12,300
3/4	Rem 209P	Longshot	15.6	Win AA28	1,300	12,400

28 Remington One Piece RTL Plastic Target Shell

Hull #45

28 Gauge 2 3/4"

Hull I.D. Page 100
Reference Notes Page 118

28 Gauge 2 3/4"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Rem 209P	SR4756	14.0	Fed 28S1	1,140	10,300
3/4	Win 209	SR4756	14.0	Rem PT28	1,155	11,000
3/4	Win 209	SR4756	14.0	Fed 28S1	1,160	11,500
3/4	Rem 209P	SR4756	15.0	Blue PC	1,165	9,900
3/4	Fed 209A	SR4756	14.0	Fed 28S1	1,175	12,300
3/4	Rem 209P	PB	13.0	Rem PT28	1,175	12,500
3/4	Win 209	800-X	13.0	Blue PC	1,185	10,300
3/4	Win 209	800-X	13.0	Win AA28	1,185	10,400
3/4	Rem 209P	PB	13.0	Blue PC	1,185	12,100
3/4	Rem 209P	SR7625	13.5	Fed 28S1	1,185	12,400
3/4	Fed 209A	SR4756	14.0	Rem PT28	1,185	12,500
3/4	Rem 209P	800-X	13.0	Blue PC	1,190	10,300
3/4	Rem 209P	SR7625	13.5	Rem PT28	1,190	12,400
3/4	Fed 209A	800-X	13.0	Win AA28	1,195	11,000
3/4	Win 209	800-X	13.0	Fed 28S1	1,195	11,300
3/4	CCI 109	Blue Dot	18.0	Win AA28	1,200	7,300
3/4	CCI 109	Blue Dot	18.0	Rem SP28	1,200	7,500
3/4	Rem 209P	Blue Dot	18.0	Rem SP28	1,200	7,600
3/4	Rem 209P	Blue Dot	18.0	Win AA28	1,200	7,700
3/4	CCI 109	Herco	14.0	Win AA28	1,200	8,300
3/4	Rem 209P	Herco	14.0	Rem SP28	1,200	8,700
3/4	Rem 209P	Herco	14.0	Win AA28	1,200	8,800
3/4	CCI 109	Herco	14.0	Rem SP28	1,200	8,900
3/4	Rem 209P	Unique	13.0	Win AA28	1,200	8,900
3/4	CCI 109	Unique	13.0	Rem SP28	1,200	9,100
3/4	CCI 109	Unique	13.0	Win AA28	1,200	9,100
3/4	Rem 209P	Unique	13.0	Rem SP28	1,200	9,100
3/4	Rem 209P	Blue Dot	18.0	Fed 28S1A	1,200	9,200
3/4	CCI 109	Blue Dot	18.5	Fed 28S1A	1,200	10,100
3/4	CCI 109	Green Dot	12.0	Rem SP28	1,200	10,200
3/4	Rem 209P	Green Dot	12.0	Win AA28	1,200	10,300
3/4	CCI 109	Green Dot	12.0	Win AA28	1,200	10,400
3/4	Rem 209P	Green Dot	12.0	Rem SP28	1,200	10,500
3/4	CCI 109	Herco	14.5	Fed 28S1A	1,200	10,700
3/4	Fed 209A	800-X	13.0	CB1034-28	1,200	10,800
3/4	CCI 109	Unique	14.0	Fed 28S1A	1,200	10,900
3/4	Rem 209P	Herco	14.5	Fed 28S1A	1,200	11,200
3/4	Win 209	SR4756	15.0	Blue PC	1,200	11,200
3/4	Rem 209P	Unique	13.5	Fed 28S1A	1,200	11,300
3/4	Rem 209P	SR7625	14.0	Blue PC	1,200	11,700
3/4	CCI 109	Green Dot	13.0	Fed 28S1A	1,200	11,800
3/4	Fed 209A	SR4756	14.5	Blue PC	1,200	12,200
3/4	Win 209	SR7625	14.0	Rem PT28	1,200	12,500
3/4	Rem 209P	800-X	13.5	CB1034-28	1,205	10,300
3/4	Rem 209P	800-X	13.5	Rem PT28	1,205	10,700
3/4	Fed 209A	800-X	13.0	Rem PT28	1,205	11,400
3/4	Fed 209A	800-X	13.0	Fed 28S1	1,205	11,700
3/4	Rem 209P	SR7625	14.0	Win AA28	1,205	11,800

Hull #45 (Continued) Remington One Piece RTL Plastic Target Shell

28

28 Gauge 2 ¾"

Hull I.D. Page 100

Reference Notes Page 118

28 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Rem 209P	PB	13.5	Win AA28	1,205	12,300
3/4	Win 209	800-X	13.5	Rem PT28	1,210	11,100
3/4	Fed 209A	800-X	13.0	Blue PC	1,210	11,400
3/4	Win 209	SR7625	14.0	Win AA28	1,210	12,200
3/4	Win 209	SR7625	14.0	Blue PC	1,210	12,200
3/4	Win 209	800-X	13.5	CB1034-28	1,215	10,800
3/4	Rem 209P	800-X	13.5	Fed 28S1	1,215	11,600
3/4	Rem 209P	Blue Dot	21.0	Rem SP28	1,295	9,700
3/4	Rem 209P	Herco	16.5	Rem SP28	1,295	10,300
3/4	Rem 209P	Unique	15.0	Rem SP28	1,295	10,600

Hull #46 Winchester Compression Formed Pastic AA & AA-Type Shell

28

28 Gauge 2 ¾"

Hull I.D. Page 100

Reference Notes Page 118

28 Gauge 2 ¾" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
11/16	CCI 209	PB	12.3	Fed 28S1	1,165	11,200
11/16	CCI 209	700-X	10.8	Win AA28	1,170	11,400
11/16	Win 209	SR 4756	15	Win AA28	1,175	9,000
11/16	Rem 209P	700-X	11.5	Win AA28	1,190	10,800
11/16	Win 209	PB	12.6	Win AA28	1,190	11,200
11/16	CCI 209	SR 7625	13.7	Fed 28S1	1,210	11,300
11/16	Fed 209	SR 4756	15	Win AA28	1,215	10,600
11/16	Win 209	SR 7625	14	Win AA28	1,225	10,300
11/16	Win 209	SR 4756	15.6	Fed 28S1	1,225	11,200
11/16	CCI 209	SR 4756	16.5	Fed 28S1	1,265	11,400
3/4	Fed 209	SR 7625	12	Win AA28	1,100	10,600
3/4	Win 209	SR4756	14.0	Win AA28	1,150	11,400
3/4	Rem 209P	SR4756	14.0	Win AA28	1,150	11,500
3/4	Fed 209A	800-X	12.0	Fed 28S1	1,150	12,000
3/4	Win 209	SR4756	14.0	Fed 28S1	1,155	12,500
3/4	Rem 209P	SR4756	14.0	CB1034-28	1,165	12,000
3/4	Rem 209P	SR7625	13.5	Blue PC	1,170	12,000
3/4	Win 209	SR4756	14.0	CB1034-28	1,170	12,200
3/4	Rem 209P	SR7625	13.5	Fed 28S1	1,170	12,400
3/4	Win 209	800-X	12.5	Fed 28S1	1,175	12,200
3/4	Fed 209A	800-X	12.5	Win AA28	1,185	11,600
3/4	Fed 209A	800-X	12.5	CB1034-28	1,185	11,700
3/4	Rem 209P	SR4756	14.5	Blue PC	1,185	12,200
3/4	Win 209	800-X	13.0	CB1034-28	1,190	11,200
3/4	Win 209	SR4756	14.5	Blue PC	1,190	12,000
3/4	Rem 209P	SR7625	14.0	CB1034-28	1,190	12,300
3/4	Win 209	800-X	13.0	Win AA28	1,195	11,400
3/4	CCI 109	Herco	14.0	Win AA28	1,200	7,900

28

28 Gauge 2 3/4" Lead Shot Load Data

Winchester Compression Formed Pastic AA & AA-Type Shell

(Continued) **Hull #46**

28 Gauge 2 3/4"

Hull I.D. Page 100
Reference Notes Page 118

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Win 209	Herco	14.0	Win AA28	1,200	8,400
3/4	CCI 109	Unique	13.0	Win AA28	1,200	8,400
3/4	Win 209	Unique	13.0	Win AA28	1,200	9,400
3/4	Rem 209P	800-X	13.5	CB1034-28	1,200	10,200
3/4	Win 209	Universal	13.0	Win AA28	1,200	10,800
3/4	Rem 209P	HS-6	17.1	Win AA28	1,200	10,900
3/4	Win 209	HS-6	17.1	Win AA28	1,200	10,900
3/4	Rem 209P	800-X	13.0	Blue PC	1,200	11,400
3/4	CCI 209SC	HS-6	16.6	Win AA28	1,200	11,500
3/4	Win 209	Green Dot	12.5	Win AA28	1,200	11,900
3/4	Rem 209P	Universal	13.2	Rem PT28	1,200	11,900
3/4	Win 209	Universal	13.2	Blue PC	1,200	11,900
3/4	CCI 209SC	Universal	13.0	Blue PC	1,200	12,000
3/4	Win 209	HS-6	16.7	Rem PT28	1,200	12,000
3/4	CCI 209SC	Universal	13.2	Rem PT28	1,200	12,200
3/4	CCI 209SC	Universal	13.0	Win AA28	1,200	12,400
3/4	Rem 209P	HS-6	16.4	Blue PC	1,200	12,400
3/4	Rem 209P	800-X	13.5	Fed 28S1	1,205	11,500
3/4	Win 209	800-X	13.0	Blue PC	1,205	12,000
3/4	Rem 209P	SR7625	14.0	Win AA28	1,205	12,300
3/4	Fed 209A	800-X	13.0	Blue PC	1,210	12,300
3/4	Rem 209P	Longshot	14.2	Rem PT28	1,225	11,300
3/4	Win 209	Longshot	14.4	Rem PT28	1,225	11,300
3/4	Win 209	Longshot	14.3	Win AA28	1,225	11,300
3/4	Win 209	HS-6	17.5	Win AA28	1,225	11,600
3/4	Win 209	Longshot	14.6	Blue PC	1,225	11,700
3/4	Rem 209P	HS-6	17.5	Win AA28	1,225	11,800
3/4	Fed 209A	Longshot	14.0	Win AA28	1,225	11,900
3/4	Rem 209P	Longshot	14.2	Win AA28	1,225	11,900
3/4	CCI 209M	Longshot	14.1	Rem PT28	1,225	12,000
3/4	CCI 209M	Longshot	14.1	Win AA28	1,225	12,100
3/4	Fed 209A	Longshot	14.2	Blue PC	1,225	12,100
3/4	CCI 209M	Longshot	14.1	Blue PC	1,225	12,200
3/4	Fed 209A	Longshot	14.4	Rem PT28	1,225	12,300
3/4	Rem 209P	Longshot	14.0	Blue PC	1,225	12,300
3/4	Win 209	Longshot	15.0	Rem PT28	1,250	12,000
3/4	Rem 209P	HS-6	17.8	Win AA28	1,250	12,100
3/4	Win 209	Longshot	15.1	Win AA28	1,250	12,100
3/4	Rem 209P	Longshot	14.6	Rem PT28	1,250	12,200
3/4	Win 209	HS-6	17.9	Win AA28	1,250	12,300
3/4	Win 209	Longshot	15.0	Blue PC	1,250	12,300
3/4	Win 209	Longshot	15.5	Rem PT28	1,275	12,300

Hull #47

28 Gauge 2 ¾"

Hull I.D. Page 100

Reference Notes Page 119

Winchester Plastic (New) HS AA Shell (With Red WAA28HS Wad)

28

28 Gauge 2 ¾"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Rem 209P	Longshot	14.7	Rem PT28	1,200	8,700
3/4	Win 209	Longshot	14.6	Rem PT28	1,200	8,900
3/4	CCI 209M	Longshot	14.2	Rem PT28	1,200	9,200
3/4	Fed 209A	Longshot	14.1	Rem PT28	1,200	9,200
3/4	Rem 209P	Longshot	14.5	BP SG28	1,200	9,200
3/4	Win 209	Longshot	14.4	BP SG28	1,200	9,200
3/4	Rem 209P	Longshot	14.4	Fed 28S1	1,200	9,500
3/4	Win 209	Longshot	14.5	Fed 28S1	1,200	9,500
3/4	Rem 209P	HS-6	18.0	BP SG28	1,200	9,600
3/4	Win 209	HS-6	18.0	BP SG28	1,200	9,700
3/4	CCI 209M	Longshot	13.9	BP SG28	1,200	9,700
3/4	Fed 209A	Longshot	14.0	BP SG28	1,200	9,700
3/4	Win 209	Longshot	14.6	Win AA28HS	1,200	9,800
3/4	Rem 209P	Longshot	14.5	Win AA28HS	1,200	9,900
3/4	Fed 209A	Longshot	14.1	Fed 28S1	1,200	10,000
3/4	CCI 209M	HS-6	18.0	BP SG28	1,200	10,100
3/4	CCI 209M	Universal	14.1	Rem PT28	1,200	10,200
3/4	CCI 209M	Longshot	14.0	Fed 28S1	1,200	10,200
3/4	Rem 209P	Universal	14.2	BP SG28	1,200	10,400
3/4	CCI 209M	HS-6	17.5	Win AA28HS	1,200	10,400
3/4	Rem 209P	Universal	14.5	Rem PT28	1,200	10,500
3/4	Fed 209A	Longshot	13.9	Win AA28HS	1,200	10,500
3/4	Fed 209A	HS-6	17.5	BP SG28	1,200	10,600
3/4	Rem 209P	HS-6	18.0	Win AA28HS	1,200	10,600
3/4	Win 209	HS-6	18.0	Win AA28HS	1,200	10,600
3/4	Win 209	Universal	14.3	Rem PT28	1,200	10,700
3/4	CCI 209M	Longshot	14.1	Win AA28HS	1,200	10,700
3/4	CCI 209M	Universal	14.3	BP SG28	1,200	11,000
3/4	Fed 209A	HS-6	17.5	Win AA28HS	1,200	11,000
3/4	Rem 209P	Universal	14.0	Win AA28HS	1,200	11,300
3/4	Win 209	Universal	14.3	BP SG28	1,200	11,400
3/4	Win 209	Universal	14.1	Fed 28S1	1,200	11,500
3/4	Rem 209P	Universal	13.8	Fed 28S1	1,200	11,600
3/4	CCI 209M	Universal	14.2	Win AA28HS	1,200	12,100
3/4	Win 209	Universal	14.1	Win AA28HS	1,200	12,200
3/4	Win 209	Longshot	14.5	Win AA28HS	1,200	10,300
3/4	Win 209	HS-6	17.0	Win AA28HS	1,200	11,500
3/4	Rem 209P	Longshot	15.1	Rem PT28	1,225	9,400
3/4	Win 209	Longshot	15.1	Rem PT28	1,225	9,600
3/4	Win 209	Longshot	14.9	BP SG28	1,225	9,700
3/4	Rem 209P	Longshot	15.0	BP SG28	1,225	9,800
3/4	CCI 209M	Longshot	14.7	Rem PT28	1,225	9,900
3/4	Fed 209A	Longshot	14.6	Rem PT28	1,225	10,000
3/4	Win 209	Longshot	14.9	Fed 28S1	1,225	10,100
3/4	Win 209	Longshot	14.9	Win AA28HS	1,225	10,100
3/4	Fed 209A	Longshot	14.6	BP SG28	1,225	10,200
3/4	Rem 209P	Longshot	14.9	Fed 28S1	1,225	10,200
3/4	CCI 209M	Longshot	14.5	BP SG28	1,225	10,400
3/4	Rem 209P	Longshot	14.9	Win AA28HS	1,225	10,600
3/4	CCI 209M	Longshot	14.5	Fed 28S1	1,225	10,900

Winchester Plastic (New) HS AA Shell (With Red WAA28HS Wad)

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Fed 209A	Longshot	14.6	Fed 28S1	1,225	10,900
3/4	Rem 209P	Universal	14.7	BP SG28	1,225	11,100
3/4	CCI 209M	Longshot	14.5	Win AA28HS	1,225	11,200
3/4	Fed 209A	Longshot	14.4	Win AA28HS	1,225	11,200
3/4	CCI 209M	Universal	14.7	Rem PT28	1,225	11,300
3/4	Win 209	Universal	14.7	Rem PT28	1,225	11,300
3/4	CCI 209M	Universal	14.6	BP SG28	1,225	11,800
3/4	Rem 209P	Universal	14.5	Fed 28S1	1,225	12,000
3/4	CCI 209M	Longshot	15.1	Rem PT28	1,250	10,200
3/4	Rem 209P	Longshot	15.6	Rem PT28	1,250	10,200
3/4	Win 209	Longshot	15.5	BP SG28	1,250	10,200
3/4	Win 209	Longshot	15.6	Rem PT28	1,250	10,300
3/4	Rem 209P	Longshot	15.5	BP SG28	1,250	10,400
3/4	Fed 209A	Longshot	15.0	Rem PT28	1,250	10,600
3/4	Win 209	Longshot	15.3	Fed 28S1	1,250	10,700
3/4	Fed 209A	Longshot	15.2	BP SG28	1,250	10,800
3/4	Rem 209P	Longshot	15.4	Fed 28S1	1,250	10,800
3/4	CCI 209M	Longshot	15.0	BP SG28	1,250	10,900
3/4	Fed 209A	Longshot	15.0	Fed 28S1	1,250	11,000
3/4	Win 209	Longshot	15.5	Win AA28HS	1,250	11,100
3/4	Rem 209P	Longshot	15.4	Win AA28HS	1,250	11,400
3/4	CCI 209M	Longshot	14.9	Fed 28S1	1,250	11,500
3/4	CCI 209M	Longshot	15.0	Win AA28HS	1,250	11,900
3/4	Win 209	Universal	15.1	Rem PT28	1,250	12,000
3/4	Fed 209A	Longshot	14.9	Win AA28HS	1,250	12,000
3/4	Rem 209P	Longshot	16.0	Rem PT28	1,275	10,800
3/4	Win 209	Longshot	16.0	BP SG28	1,275	10,800
3/4	Win 209	Longshot	16.0	Rem PT28	1,275	10,800
3/4	CCI 209M	Longshot	15.6	Rem PT28	1,275	11,200
3/4	Win 209	Longshot	15.7	Fed 28S1	1,275	11,200
3/4	Fed 209A	Longshot	15.5	Rem PT28	1,275	11,400
3/4	Rem 209P	Longshot	15.9	Fed 28S1	1,275	11,400
3/4	CCI 209M	Longshot	15.5	BP SG28	1,275	11,500
13/16	Win 209	Longshot	14.5	Rem PT28	1,175	9,700
13/16	Rem 209P	Longshot	14.3	Rem PT28	1,175	9,900
13/16	Rem 209P	Longshot	14.2	BP SG28	1,175	10,300
13/16	CCI 209M	Longshot	14.5	Rem PT28	1,175	10,400
13/16	Win 209	Longshot	14.2	BP SG28	1,175	10,400
13/16	Fed 209A	Longshot	14.2	Rem PT28	1,175	10,600
13/16	CCI 209M	Longshot	14.0	BP SG28	1,175	10,800
13/16	Fed 209A	Longshot	14.0	BP SG28	1,175	11,100
13/16	Rem 209P	Longshot	14.2	Fed 28S1	1,175	11,200
13/16	Win 209	Longshot	14.3	Fed 28S1	1,175	11,400
13/16	CCI 209M	Longshot	14.0	Fed 28S1	1,175	11,700
13/16	Win 209	Longshot	14.2	Win AA28HS	1,175	11,700
13/16	Fed 209A	Longshot	14.0	Fed 28S1	1,175	11,800
13/16	CCI 209M	Longshot	14.0	Win AA28HS	1,175	12,000
13/16	Fed 209A	Longshot	14.0	Win AA28HS	1,175	12,100
13/16	CCI 209M	Longshot	14.8	Rem PT28	1,200	11,200
13/16	Fed 209A	Longshot	14.2	Fed 28S1	1,200	12,200

Hull #48

410 Gauge 3"

Hull I.D. Page 101

Reference Notes Page 119

Federal Plastic Shell (With Paper Basewad)

410

410 Gauge 3" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
11/16	Win 209	H110	15.0	Win AA41	1,135	11,800
11/16	Fed 209A	H110	14.9	Fed 410SC	1,135	12,300
11/16	Fed 209A	Lil'Gun	13.0	Win AA41	1,135	12,400
11/16	Rem 209P	Lil'Gun	13.1	Rem SP410	1,135	12,900
11/16	Win 209	Lil'Gun	12.8	Win AA41	1,135	12,900
11/16	Fed 209A	Lil'Gun	13.0	Fed 410SC	1,135	13,400
11/16	Win 209	Lil'Gun	12.9	Fed 410SC	1,135	13,500

Hull #49

410 Gauge 3"

Hull I.D. Page 101

Reference Notes Page 120

Remington Plastic Shell (With Plastic Basewad)

410

410 Gauge 3" Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	Rem 209 PSTS	IMR4198	26.5	Rem SP410	1,455	11,100
11/16	Rem 209P	IMR4227	19.0	Rem SP410	1,115	10,900
11/16	Win 209	IMR4227	19.0	Rem SP410	1,120	11,600
11/16	Rem 209P	H110	15.0	Rem SP410	1,135	11,800
11/16	CCI 209M	2400	14.5	Rem SP410	1,135	12,200
11/16	Rem 97*	2400	14.5	Win AA41	1,135	12,300
11/16	Rem 97*	2400	14.5	Fed 410SC	1,135	12,600
11/16	Fed 410	2400	14.0	Rem SP410	1,135	12,700
11/16	Win 209	H110	14.5	Win AA41	1,135	12,800
11/16	Rem 209P	Lil'Gun	12.8	Rem SP410	1,135	12,900
11/16	Rem 97*	2400	14.5	Rem SP410	1,135	13,000
11/16	Win 209	Lil'Gun	12.7	Win AA41	1,135	13,500
11/16	Fed 209A	IMR4227	19.0	Rem SP410	1,175	13,300

410 — Winchester Compression Formed Plastic AA-Type Shell

Hull #50

410 Gauge 3"

410 Gauge 3" Lead Shot Load Data

Hull I.D. Page 101
Reference Notes Page 120

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	Win 209	IMR4198	22.0	Win AA41	1,260	9,100
5/8	Win 209	IMR4227	16.5	Win AA41	1,015	9,200
5/8	Fed 209A	IMR4227	16.5	Win AA41	1,055	10,700
11/16	CCI 209	Lil'Gun	12.2	Orange PC	1,100	13,300
11/16	Rem 209P	Lil'Gun	12.0	Rem SP410	1,100	13,300
11/16	CCI 209	Lil'Gun	11.6	WAA41	1,100	13,400
11/16	Rem 209P	Lil'Gun	12.3	Orange PC	1,100	13,500
11/16	Rem 209P	Lil'Gun	11.8	WAA41	1,100	13,500
11/16	Win 209	H110	13.5	WAA41	1,135	10,900
11/16	Rem 209P	H110	14.3	Rem SP410	1,135	12,500
11/16	Fed 209A	H110	14.1	Fed 410SC	1,135	13,400
11/16	Win 209	296	13.5	Win AA41	1,135	10,800

410 — Winchester Plastic (New) HS AA Shell with Red WAA410HS Wad

Hull #51

410 Gauge 3"

410 Gauge 3" Lead Shot Load Data

Hull I.D. Page 101
Reference Notes Page 120

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
11/16	Win 209	296	15.5	Win AA410HS	1,135	9,700 psi

410 — Federal Plastic Shell (With Paper Basewad)

Hull #52

410 Gauge 2 ½"

410 Gauge 2 ½" Lead Shot Load Data

Hull I.D. Page 102
Reference Notes Page 121

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	Fed 209A	IMR4227	17.0	Rem SP410	1,155	12,000
1/2	Win 209	IMR4227	18.0	CB1050-41	1,165	11,300
1/2	Fed 209A	IMR4227	17.0	Orange PC	1,170	12,500
1/2	Rem 209P	IMR4227	18.5	Rem SP410	1,180	10,700
1/2	Fed 209A	IMR4227	17.5	CB1050-41	1,190	12,200
1/2	Fed 209A	IMR4227	17.5	Fed 410SC	1,195	12,200
1/2	Win 209	H110	15.5	Orange PC	1,200	8,400
1/2	Fed 209A	H110	15.5	Orange PC	1,200	8,500
1/2	Win 209	H110	15.0	Win AA41	1,200	9,700
1/2	Fed 209A	410	11.5	Yellow Duster	1,200	10,027
1/2	Fed 209A	H110	15.0	Fed 410SC	1,200	10,200
1/2	CCI 209M	410	12.0	Fed 410SC	1,200	10,642
1/2	Rem 209P	Lil'Gun	13.1	Win AA41	1,200	10,800
1/2	Rem 209P	Lil'Gun	13.0	Fed 410SC	1,200	11,000
1/2	Fed 209A	Lil'Gun	13.0	Win AA41	1,200	11,100

Hull #52 (Continued)
410 Gauge 3″
Hull I.D. Page 102
Reference Notes Page 121

Federal Plastic Shell (With Paper Basewad)

410

410 Gauge 3″ Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	Rem 209P	Lil'Gun	13.1	Rem SP410	1,200	11,200
1/2	Fed 209	2400	13.0	Win AA41	1,200	11,300
1/2	CCI 209SC	Lil'Gun	12.8	Rem SP410	1,200	11,400
1/2	Fed 209	2400	13.0	Rem SP410	1,200	11,500
1/2	Win 209	Lil'Gun	12.8	Orange PC	1,200	11,500
1/2	Win 209	Lil'Gun	12.9	Fed 410SC	1,200	11,600
1/2	CCI 209SC	Lil'Gun	12.8	Win AA41	1,200	11,700
1/2	Fed 209A	Lil'Gun	13.0	Rem SP410	1,200	11,700
1/2	Win 209	Lil'Gun	12.8	Rem SP410	1,200	11,700
1/2	Win 209	Lil'Gun	12.8	Win AA41	1,200	11,700
1/2	CCI 209SC	Lil'Gun	12.9	Fed 410SC	1,200	11,800
1/2	Fed 209A	Lil'Gun	12.9	Fed 410SC	1,200	11,800
1/2	Fed 209	2400	13.5	Fed 410SC	1,200	11,900
1/2	Fed 410	2400	13.5	Fed 410SC	1,200	12,000
1/2	Win 209	IMR4227	18.0	Rem SP410	1,200	12,000
1/2	Win 209	IMR4227	18.5	Orange PC	1,215	11,800

Hull #53
410 Gauge 2 ½″
Hull I.D. Page 102
Reference Notes Page 121

Remington Plastic Premier STS Shell (With Plastic Basewad)

410

410 Gauge 2 ½″ Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	CCI 209SC	LIL'GUN	12.9	Fed 410SC	1,200	11,800
1/2	CCI 209SC	LIL'GUN	13.0	Orange PC	1,200	11,300
1/2	CCI 209SC	LIL'GUN	12.9	Rem SP410	1,200	11,600
1/2	CCI 209SC	LIL'GUN	12.8	WAA41	1,200	11,300
1/2	Fed 209A	LIL'GUN	12.9	Fed 410SC	1,200	11,600
1/2	Fed 209A	LIL'GUN	13.1	Orange PC	1,200	11,000
1/2	Fed 209A	LIL'GUN	12.9	Rem SP410	1,200	10,900
1/2	Fed 209A	LIL'GUN	12.9	WAA41	1,200	11,200
1/2	Rem 209P	LIL'GUN	13.0	Fed 410SC	1,200	11,000
1/2	Rem 209P	LIL'GUN	13.3	Orange PC	1,200	10,400
1/2	Rem 209P	LIL'GUN	13.2	Rem SP410	1,200	10,800
1/2	Rem 209P	LIL'GUN	13.0	WAA41	1,200	10,600
1/2	Win 209	LIL'GUN	12.6	Fed 410SC	1,200	11,800
1/2	Win 209	LIL'GUN	12.9	Orange PC	1,200	11,100
1/2	Win 209	LIL'GUN	12.6	Rem SP410	1,200	11,600
1/2	Win 209	LIL'GUN	12.9	WAA41	1,200	11,500
1/2	Fed 209A	H110	14.2	Fed 410SC	1,200	10,600
1/2	Rem 209P	H110	14.7	Fed 410SC	1,200	9,600
1/2	Rem 209P	H110	15.2	Orange PC	1,200	9,300
1/2	Rem 209P	H110	14.8	Rem SP410	1,200	8,900
1/2	Win 209	H110	14.0	WAA41	1,200	10,000

410

410 Gauge 2 ½"
Lead Shot Load Data

Remington Plastic SP Shell (With Plastic Basewad)

Hull #54
410 Gauge 2 ½"
Hull I.D. Page 102
Reference Notes Page 121

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	Win 209	IMR4227	18.0	CB1050-41	1,160	11,000
1/2	Win 209	IMR4227	17.5	PC-410	1,160	11,200
1/2	Fed 209A	IMR4227	17.5	Fed 410SC	1,195	12,400
1/2	Fed 209A	IMR4227	17.5	PC-410	1,195	12,500
1/2	Rem 209P	H110	16.5	Orange PC	1,200	7,000
1/2	Rem 209P	410	12.3	CB1050-41	1,200	8,732
1/2	Rem 209P	410	12.3	Win AA41	1,200	8,812
1/2	Rem 209P	H110	14.8	Rem SP410	1,200	8,900
1/2	Rem 209P	H110	15.2	Orange PC	1,200	9,300
1/2	Rem 209P	H110	15.0	Rem SP410	1,200	9,400
1/2	Rem 209P	H110	15.0	Fed 410SC	1,200	9,500
1/2	Rem 209P	410	12.0	Rem SP410	1,200	9,522
1/2	Rem 209P	H110	14.7	Fed 410SC	1,200	9,600
1/2	CCI 209M	410	12.2	Rem SP410	1,200	9,792
1/2	Rem 209P	410	12.8	Duster 4150	1,200	9,852
1/2	Win 209	H110	14.0	Win AA41	1,200	10,000
1/2	Rem 209P	Lil'Gun	13.1	Win AA41	1,200	10,200
1/2	CCI 209	2400	14.5	Win AA41	1,200	10,300
1/2	Rem 209P	Lil'Gun	13.3	Orange PC	1,200	10,400
1/2	CCI 209	2400	14.5	Rem SP410	1,200	10,500
1/2	CCI 209	2400	14.0	Fed 410SC	1,200	10,600
1/2	Fed 209A	H110	14.2	Fed 410SC	1,200	10,600
1/2	Rem 209P	Lil'Gun	13.0	Win AA41	1,200	10,600
1/2	Rem 209P	Lil'Gun	13.2	Rem SP410	1,200	10,800
1/2	Fed 209A	Lil'Gun	12.9	Rem SP410	1,200	10,900
1/2	Rem 209P	Lil'Gun	13.0	Rem SP410	1,200	10,900
1/2	CCI 209M	2400	13.5	Rem SP410	1,200	11,000
1/2	Fed 209A	Lil'Gun	13.1	Orange PC	1,200	11,000
1/2	Rem 209P	Lil'Gun	13.0	Fed 410SC	1,200	11,000
1/2	Win 209	Lil'Gun	12.9	Orange PC	1,200	11,100
1/2	Fed 209A	Lil'Gun	12.9	Win AA41	1,200	11,200
1/2	CCI 209SC	Lil'Gun	13.0	Orange PC	1,200	11,300
1/2	CCI 209SC	Lil'Gun	12.8	Win AA41	1,200	11,300
1/2	Rem 97*	2400	13.5	Fed 410SC	1,200	11,400
1/2	Rem 97*	2400	13.0	Rem SP410	1,200	11,500
1/2	Rem 97*	2400	14.0	Win AA41	1,200	11,500
1/2	Win 209	Lil'Gun	12.9	Win AA41	1,200	11,500
1/2	CCI 209SC	Lil'Gun	12.9	Rem SP410	1,200	11,600
1/2	Fed 209A	Lil'Gun	12.9	Fed 410SC	1,200	11,600
1/2	Win 209	Lil'Gun	12.8	Win AA41	1,200	11,600
1/2	Win 209	Lil'Gun	12.6	Rem SP410	1,200	11,600
1/2	Win 209	Lil'Gun	12.7	Rem SP410	1,200	11,700
1/2	CCI 209SC	Lil'Gun	12.9	Fed 410SC	1,200	11,800
1/2	Win 209	Lil'Gun	12.6	Fed 410SC	1,200	11,800
1/2	Fed 209A	IMR4227	18.0	CB1050-41	1,210	12,500
1/2	Rem 209P	410	12.7	Rem SP410	1,230	9,697
1/2	Rem 209P	410	12.2	Fed 410SC	1,230	10,747

Hull #55

410 Gauge 2 ½"

Hull I.D. Page 102

Reference Notes Page 121

Winchester Compression Formed Plastic AA & AA-Type Shell

410

410 Gauge 2 ½"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	Win 209	IMR4227	16.5	PC-410	1,140	12,300
1/2	CCI 209	296	13.5	Win AA41	1,150	8,500
1/2	Win 209	296	13.5	Win AA41	1,150	9,100
1/2	Fed 209A	H110	15.0	Orange PC	1,200	9,000
1/2	CCI 209	296	14.0	Win AA41	1,200	9,100
1/2	Win 209	H110	14.0	Fed 410SC	1,200	9,100
1/2	Win 209	H110	14.0	Orange PC	1,200	9,500
1/2	Win 209	296	14.0	Win AA41	1,200	9,800
1/2	Win 209	H110	14.0	Win AA41	1,200	9,900
1/2	Win 209	410	11.5	CB1050-41	1,200	10,127
1/2	Win 209	410	11.5	Rem SP410	1,200	10,767
1/2	Rem 209P	Lil'Gun	12.5	Orange PC	1,200	11,100
1/2	CCI 209M	410	11.5	Win AA41	1,200	11,127
1/2	Win 209	410	11.4	Duster 4150	1,200	11,147
1/2	Fed 209A	Lil'Gun	12.6	Win AA41	1,200	11,500
1/2	Rem 209P	Lil'Gun	12.6	Rem SP410	1,200	11,500
1/2	Win 209	410	11.0	Fed 410SC	1,200	11,582
1/2	Win 209	Lil'Gun	12.5	Orange PC	1,200	11,600
1/2	Win 209	2400	13.0	Win AA41	1,200	11,700
1/2	Fed 209A	Lil'Gun	12.6	Orange PC	1,200	11,700
1/2	Rem 209P	Lil'Gun	12.5	Win AA41	1,200	11,700
1/2	Win 209	410	11.9	Win AA41	1,200	11,797
1/2	CCI 209SC	Lil'Gun	12.4	Orange PC	1,200	11,800
1/2	Fed 209A	Lil'Gun	12.6	Rem SP410	1,200	11,800
1/2	CCI 209	2400	13.5	Rem SP410	1,200	12,000
1/2	CCI 209SC	Lil'Gun	12.3	Rem SP410	1,200	12,000
1/2	CCI 209SC	Lil'Gun	12.3	Win AA41	1,200	12,000
1/2	CCI 209	2400	13.0	Fed 410SC	1,200	12,100
1/2	Win 209	Lil'Gun	12.5	Rem SP410	1,200	12,200
1/2	CCI 209SC	Lil'Gun	11.9	Fed 410SC	1,200	12,300
1/2	Win 209	Lil'Gun	12.2	Win AA41	1,200	12,300
1/2	Fed 209A	Lil'Gun	12.2	Fed 410SC	1,200	12,400
1/2	Rem 209P	Lil'Gun	12.5	Fed 410SC	1,200	12,400
1/2	Win 209	Lil'Gun	12.0	Fed 410SC	1,200	12,400
1/2	Win 209	410	11.9	CB1050-41	1,230	10,942

Hull #56

410 Gauge 2 ½"

Hull I.D. Page 102

Reference Notes Page 122

Winchester Plastic (New) HS AA Shell (With Red WAA410HS Wad)

410

410 Gauge 2 ½"
Lead Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1/2	Win 209	296	15.0	Win AA410HS	1,200	10,000

10 Federal Plastic Target Shell (With Paper Basewad)

Hull #1

10 Gauge 3 ½"

10 Gauge 3 ½" Lead Buckshot Load Data

Hull I.D. Page 84
Reference Notes Page 103

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
17-0's	Fed 209A	Blue Dot	46.0	SP10 +.135 in. 20 ga. Card Under Shot	1,300	10,000
40-4's	Fed 209A	Blue Dot	45.0	SP10 +.270 in. 20 ga. Card Under Shot	1,275	10,100

10 Winchester Polyformed Plastic Shell (With White Plastic Basewad)

Hull #4

10 Gauge 3 ½"

10 Gauge 3 ½" Lead Buckshot Load Data

Hull I.D. Page 85
Reference Notes Page 104

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
17-0's	Win 209	Blue Dot	51.0	SP10	1,300	9,500
40-4's	Win 209	Blue Dot	47.5	SP10 +.270 in. 20 ga. Card Under Shot	1,275	10,000

12 Federal Hi-Power Plastic Shell (With 7/16" Paper Basewad)

Hull #8

12 Gauge 3"

12 Gauge 3" Lead Buckshot Load Data

Hull I.D. Page 86
Reference Notes Page 105

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
12-0's	Fed 209A	Herco	31.5	RP12 +.200 in. 20 ga. Card Under Shot	1,275	9,800
18-1's	Fed 209A	Blue Dot	36.0	BP GS&SC	1,225	9,700
33-4's	Fed 209A	2400	50.0	BP GS&SC	1,250	8,100
33-4's	Fed 209A	Blue Dot	37.0	BP GS&SC	1,250	10,500

12 Remington One-Piece Unibody Shell

Hull #12

12 Gauge 3"

12 Gauge 3" Lead Buckshot Load Data

Hull I.D. Page 87
Reference Notes Page 107

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
12-0's	Rem 97★	Herco	29.5	RP12 +.200 in. 20 ga. Card Under Shot	1,275	10,000
18-1's	Rem 97★	Blue Dot	35.5	BP GS&SC	1,225	9,800
33-4's	Rem 97★	2400	46.0	BP GS&SC	1,250	9,400

Hull #18
12 Gauge 2 ¾"
Hull I.D. Page 90
Reference Notes Page 109

Federal One-Piece Plastic Shell Target & Gold Medal Type

12
12 Gauge 2 ¾"
Lead Buckshot Load Data

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
8–#00	Fed 209A	700-X	17.5	Fed 12S3 + 20 gr. BP SDC Buffer	1,230	10,900
8–#00	Fed 209A	PB	25.0	Fed 12S4 + 20 gr. BP SDC Buffer	1,340	10,900
8–#00	Fed 209A	SR7625	30.0	Fed 12S4 + 20 gr. BP SDC Buffer	1,410	10,800
8–#00	Fed 209A	800-X	29.0	Fed 12S4 + 20 gr. BP SDC Buffer	1,465	10,800
8–#00	Fed 209A	SR4756	37.0	Win AA12R + 18 gr. BP SDC Buffer	1,545	10,900

Hull #24
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One Piece Premier RTL, STS, Nitro 27 Plastic Target Shell

12
12 Gauge 2 ¾"
Lead Buckshot Load Data

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
8–#00	Rem 209P	700-X	17.5	Rem Fig 8 + 20 gr. BP SDC Buffer	1,225	10,700
8–#00	Fed 209A	700-X	17.0	Rem Fig 8 + 20 gr. BP SDC Buffer	1,210	10,800
8–#00	Rem 209P	PB	25.0	Rem SP12 + 20 gr. BP SDC Buffer	1,340	10,600
8–#00	Rem 209P	SR7625	30.5	Rem SP12 + 20 gr. BP SDC Buffer	1,425	10,800
8–#00	Fed 209A	SR7625	27.0	Rem SP12 + 20 gr. BP SDC Buffer	1,360	10,800
8–#00	Rem 209P	800-X	30.0	Rem SP12 + 20 gr. BP SDC Buffer	1,475	10,900
8–#00	Rem 209P	SR4756	37.0	Win AA12R + 18 gr. BP SDC Buffer	1,545	11,000

Hull #28
12 Gauge 2 ¾"
Hull I.D. Page 95
Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12
12 Gauge 2 ¾"
Lead Buckshot Load Data

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
8-#00	Win 209	700-X	18.0	Win AA12R + 20 gr. BP SDC Buffer	1,245	10,800
8-#00	Win 209	PB	27.5	Win AA12R + 20 gr. BP SDC Buffer	1,410	10,800
8-#00	Win 209	SR7625	33.0	Win AA12R + 20 gr. BP SDC Buffer	1,495	10,600
8-#00	Win 209	SR7625	29.5	Win AA12R + 20 gr. BP SDC Buffer	1,430	11,000
8-#00	Win 209	800-X	32.0	Win AA12R + 20 gr. BP SDC Buffer	1,545	10,700
8-#00	Win 209	SR4756	39.5	Win AA12R + 18 gr. BP SDC Buffer	1,595	10,800

20 Gauge 3" Lead Buckshot Load Data

Federal Hi-Power Plastic Shell (With Paper Basewad)

Hull #34
20 Gauge 3"
Hull I.D. Page 97
Reference Notes Page 115

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
18-3's	Fed 209A	Herco	19.5	Rem RXP20	1,220	8,400
21-3's	Fed 209A	Blue Dot	26.0	Rem SP20	1,220	7,800

20 Gauge 3" Lead Buckshot Load Data

Winchester Compression Formed Plastic AA-Type Shell

Hull #36
20 Gauge 3"
Hull I.D. Page 97
Reference Notes Page 115

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
18-3's	Win 209	Herco	19.0	Win AA20F1	1,220	9,500
21-3's	Win 209	Blue Dot	25.0	Rem RP20	1,200	9,400

20 Gauge 2 3/4" Lead Buckshot Load Data

Federal Plastic Target Shell (With Paper Basewad)

Hull #38
20 Gauge 2 3/4"
Hull I.D. Page 98
Reference Notes Page 116

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
12-1's	Fed 209A	Blue Dot	25.5	Rem SP20 Petals Removed	1,275	10,100
18-4's	Fed 209A	Blue Dot	25.0	Rem SP20	1,275	9,300
18-4's	Fed 209A	Herco	19.0	Rem SP20	1,275	11,000
24-3's	Fed 209A	Blue Dot	24.0	Rem SP20 Petals Removed	1,200	11,200

20 Gauge 2 3/4" Lead Buckshot Load Data

Winchester Compression Formed Plastic AA & AA-Type Shell

Hull #41
20 Gauge 2 3/4"
Hull I.D. Page 99
Reference Notes Page 117

Buckshot No. & Size	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
12-1's	Win 209	Blue Dot	25.5	Rem SP20 Petals Removed	1,275	10,400
18-4's	Win 209	Blue Dot	24.0	Rem SP20	1,275	9,600

Hull #18
12 Gauge 2 ¾"
Hull I.D. Page 90
Reference Notes Page 109

Federal One-Piece Plastic Shell (Target & Gold Medal Type)

12 Gauge 2 ¾" Lead Slug Load Data

Lee Slug Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	Herco	34.0	Win AA12	1,538	10,400
1	Fed 209A	Blue Dot	49.0	Win AA12	1,690	10,200

Hull #24
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Remington One-Piece Premier RTL, STS, Nitro 27 Plastic Target Shell

12 Gauge 2 ¾" Lead Slug Load Data

Lee Slug Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Herco	34.0	Win AA12	1,522	10,400
1	Win 209	Blue Dot	49.0	Win AA12	1,673	10,200

Hull #28
12 Gauge 2 ¾"
Hull I.D. Page 95
Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12 Gauge 2 ¾" Lead Slug Load Data

Lee Slug Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Herco	36.0	Win AA12	1,587	10,600

Steel Shot Data

About the steel reloading data in this section

CAUTION! Do not reload any shotshells until you read and understand the contents in this manual.

WARNING! Data shown in this section must only be used with steel shot.

Ballistic data in this section was developed in the Alliant and Hodgdon ballistics laboratories using listed components under strictly controlled conditions.

- **Substitutions of components could cause excessive or dangerous pressures, which could damage or destroy your firearm or cause serious personal injury or even death to the user and/or bystanders— therefore, NEVER substitute components when loading shotshells using this data.**
- **Your reloads must contain the exact combinations listed in this manual. NEVER EXCEED charge recommendations in this manual.**
- **Both powder charge and steel shot charge should be individually weighed with a quality scale to insure compliance to the load data.**
- **Shotshell cases (hulls) that cannot be positively identified should not be reloaded. Contact the manufacturer and request additional identifying information.**
- **Always refer to the double check list at the end of chapter 7 before actual reloading.**
- **Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate steel reloading data. Sectioning the hull is required to do this.**

You must also always remember:

1. Establish a routine for reloading. It will result in more uniform loads and less chance of error.
2. Some primers are more powerful than others (they produce more gas at a higher temperature). Use only the primers specified herein.
3. Shotshell wads differ in their sealing ability. Use only the load combinations specified herein.
4. Use only the brands of powder and components shown in the data sections. Do not substitute other types.
5. Discharging firearms in poorly ventilated areas, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to cause birth defects, reproductive harm, and other serious physical injury. Have adequate ventilation at all times. Wash hands and face thoroughly after handling and before coming in contact with food, chewing materials and smoking material.

Regarding the use of wad fillers/spacers:

Spacer or filler wads serve the purpose of raising the shot column to a level that will allow for the forming of a good crimp. If a space filler is required for a particular load, the thickness and location of that filler will be indicated in the "Wad" column. As an example, it might be described in the following manner: "Win AA12R + 2- .135" cards under shot" or, "Rem RP12 + 1/8" felt spacer over shot" or "BP#3221000 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup" or, "Precision Reloading TUFW105 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup."

Fillers/spacers can be stacked if necessary, and the number needed may vary depending on the size of shot being used. If your crimp dishes in a bit, or bulges, you can add to or reduce the number of spacers to improve the crimp. Only slight adjustments, if any, will be necessary for this reason. Alliant does not recommend the addition of shot buffer to any of their loading data.

Alliant recommends that commercially available shotshell sealant be applied to both the primer and crimp areas to prevent moisture penetration.

Filler wad/spacers, shotshell primer/crimp sealant and additional information for handloaders is available from the following specialty reloading supply companies:

Ballistic Products, Inc.
Box 293
Corcoran, MN 55340
888/273–5623
www.ballisticproducts.com

Precision Reloading, LLC
124 S. Main ST.
Mitchell, SD 57301
605/996–9984
www.precisionreloading.com

Reloading Specialties, Inc.
Box 1130
Pine Island, MN 55963
507/356–8500

Hull #2
10 Gauge 3 ½"
Hull I.D. Page 84
Reference Notes Page 103

Remington SP Plastic Shell (With Yellow Plastic (Tall) Basewad)

10
10 Gauge 3 ½" Steel Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Alliant Steel	50.0	Precision Reloading TUFW105 + 1 (one) 12-gauge, 1/2" fiber wad to the inside bottom of the shot cup.	1,590	9,800
1 3/8	Fed 209A	Alliant Steel	43.5	Precision Reloading TUFW105 + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,475	10,000
1 3/8	Fed 209A	Alliant Steel	46.0	BP#3221000 + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,535	10,100
1 3/8	Fed 209A	Alliant Steel	48.0	Reloading Specialties "SAM 1" + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,555	10,300
1 1/2	Fed 209A	Alliant Steel	37.5	Precision Reloading TUFW105 + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,345	10,300
1 1/2	Fed 209A	Alliant Steel	39.0	BP#3221000 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,385	10,100
1 1/2	Fed 209A	Alliant Steel	45.0	Reloading Specialties "SAM 1" + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,470	10,100
1 5/8	Fed 209A	Alliant Steel	37.0	BP#3221000 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,310	10,100

Hull #4
10 Gauge 3 ½"
Hull I.D. Page 85
Reference Notes Page 104

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

10
10 Gauge 3 ½" Steel Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Alliant Steel	45.5	Reloading Specialties "SAM 1" 10 ga 3 1/2"	1,538	10,155
1 1/2	Fed 209A	Alliant Steel	41.0	Reloading Specialties "SAM 1" 10 ga 3 1/2"	1,415	9,865

Hull #5
12 Gauge 3 ½"
Hull I.D. Page 85
Reference Notes Page 104

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

12
12 Gauge 3 ½" Steel Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Alliant Steel	45.0	Reloading Specialties "SAM 1" + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,510	10,400
1 1/4	Fed 209A	Alliant Steel	45.0	BP#3221235	1,560	10,900
1 1/4	Fed 209A	Alliant Steel	45.0	Precision Reloading TUFW1235 + 4 (four) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,565	10,700
1 3/8	Fed 209A	Alliant Steel	40.0	Precision Reloading TUFW1235 + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,470	12,500
1 3/8	Fed 209A	Alliant Steel	41.5	BP#3221235 + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,485	12,600

12 Gauge 3 ½" Steel Shot Load Data

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

(Continued) **Hull #5**

12 Gauge 3 ½"

Hull I.D. Page 85
Reference Notes Page 104

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/2	Fed 209A	Steel	36.0	Precision Reloading TUFW1235 + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,360	12,600
1 1/2	Fed 209A	Steel	37.0	BP#3221235 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,385	12,800
1 1/2	Fed 209A	Steel	39.0	Reloading Specialties "SAM 1" + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,390	13,300

12 Gauge 3 ½" Steel Shot Load Data

Remington SP Plastic Shell (With Yellow Plastic Basewad)

Hull #6

12 Gauge 3 ½"

Hull I.D. Page 85
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Steel	45.0	Reloading Specialties "SAM 1"	1,595	13,100
1 1/4	Fed 209A	Steel	45.0	BP#3221235 + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,615	13,300
1 3/8	Fed 209A	Steel	37.0	BP#3221235 + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,430	12,800
1 3/8	Fed 209A	Steel	38.5	Reloading Specialties "SAM 1"	1,430	12,800
1 1/2	Fed 209A	Steel	33.0	BP#3221235 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,305	13,000
1 1/2	Fed 209A	Steel	35.0	Reloading Specialties "SAM 1" + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,330	13,000

12 Gauge 3" Steel Shot Load Data

Federal Hi-Power Plastic Shell (With 7/16" Paper Basewad)

Hull #8

12 Gauge 3"

Hull I.D. Page 86
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	Steel	45.0	BP#3221230	1,665	8,900
1	Fed 209A	Steel	48.0	Reloading Specialties "SAM 1" + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,700	8,200
1 1/8	Fed 209A	Steel	39.5	BP#3221230 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,550	10,600
1 1/8	Fed 209A	Steel	40.5	Reloading Specialties "SAM 1" + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,560	10,500
1 1/4	Fed 209A	Steel	33.0	BP#3221230	1,390	10,900
1 1/4	Fed 209A	Steel	36.0	Reloading Specialties "SAM 1"	1,430	10,500

Hull #9
12 Gauge 3"
Hull I.D. Page 86
Reference Notes Page 106

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

12
12 Gauge 3"
Steel Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	Steel	44.0	Precision Reloading TUFW123 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,660	9,400
1	Fed 209A	Steel	45.0	BP#3221230	1,690	10,500
1	Fed 209A	Steel	47.0	Reloading Specialties "SAM 1" + 3 (three) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,720	8,900
1 1/8	Fed 209A	Steel	37.0	BP#3221230 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,510	10,400
1 1/8	Fed 209A	Steel	38.0	Precision Reloading TUFW123 + 2 (two) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,515	10,900
1 1/8	Fed 209A	Steel	40.5	Reloading Specialties "SAM 1" + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,580	10,700
1 1/4	Fed 209A	Steel	33.0	Precision Reloading TUFW123 + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,355	10,500
1 1/4	Fed 209A	Steel	33.0	BP#3221230 + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,370	10,500
1 1/4	Fed 209A	Steel	37.0	Reloading Specialties "SAM 1" + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,455	10,800

Hull #13
12 Gauge 3"
Hull I.D. Page 88
Reference Notes Page 107

Remington SPLV Plastic Shell (With Plastic Basewad)

12
12 Gauge 3"
Steel Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Steel	33.5	BP#3221230	1,440	10,795
1 1/8	Fed 209A	Steel	35.0	Precision Reloading TUFW123	1,457	10,710
1 1/8	Fed 209A	Steel	33.0	Reloading Specialties "SAM 1"	1,479	10,620
1 1/4	Fed 209A	Steel	32.0	Precision Reloading TUFW123	1,392	10,690

12

12 Gauge 2 3/4"
Steel Shot Load Data

Federal One-Piece Plastic Shell Target & Gold Medal Type

Hull #18

12 Gauge 2 3/4"

Hull I.D. Page 90
Reference Notes Page 109

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Fed 209A	Steel	42.0	Reloading Specialties "SAM 1" + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,700	7,800
7/8	Fed 209A	Steel	45.0	BP#3221275	1,765	9,000
1	Fed 209A	Steel	33.0	BP#3221275 + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,480	9,500
1	Fed 209A	Steel	37.0	Precision Reloading TUFW12 + 1 (one) 12-gauge, 1/8" felt spacer to the inside bottom of the shot cup.	1,500	8,000
1	Fed 209A	Steel	36.0	Reloading Specialties "SAM 1"	1,520	9,200
1 1/8	Fed 209A	Steel	32.0	Reloading Specialties "SAM 1"	1,380	9,000
1 1/8	Fed 209A	Steel	32.0	Precision Reloading TUFW12	1,425	9,600

12

12 Gauge 2 3/4"
Steel Shot Load Data

Remington Nitro Mag Plastic Shell (With Plastic Basewad)

Hull #23

12 Gauge 2 3/4"

Hull I.D. Page 92
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	Steel	35.5	Precision Reloading TUFW12	1,520	10,800
1	Fed 209A	Steel	35.5	Reloading Specialties "SAM 1"	1,546	10,250
1 1/8	Fed 209A	Steel	29.5	Precision Reloading TUFW12	1,361	10,420
1 1/8	Fed 209A	Steel	32.5	Reloading Specialties "SAM 1"	1,428	10,410

Bismuth Shot Data

About the bismuth reloading data in this section

CAUTION! Do not reload any shotshells until you read and understand the contents in this manual.

WARNING! Data shown in this section must only be used with bismuth shot.

Ballistic data in this section was developed in the Alliant and Hodgdon ballistics laboratories using listed components under strictly controlled conditions.

- **Substitutions of components could cause excessive or dangerous pressures, which could damage or destroy your firearm or cause serious personal injury or even death to the user and/or bystanders— therefore, NEVER substitute components when loading shotshells using this data.**
- **Your reloads must contain the exact combinations listed in this manual. NEVER EXCEED charge recommendations in this manual.**
- **Both powder charge and bismuth shot charge should be individually weighed with a quality scale to insure compliance to the load data.**
- **Shotshell cases (hulls) that cannot be positively identified should not be reloaded. Contact the manufacturer and request additional identifying information.**
- **Always refer to the double check list at the end of chapter 7 before actual reloading.**
- **Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate bismuth reloading data. Sectioning the hull is required to do this.**

You must also always remember:

1. Establish a routine for reloading. It will result in more uniform loads and less chance of error.
2. Some primers are more powerful than others (they produce more gas at a higher temperature). Use only the primers specified herein.
3. Shotshell wads differ in their sealing ability. Use only the load combinations specified herein.
4. Use only the brands of powder and components shown in the data sections. Do not substitute other types.
5. Discharging firearms in poorly ventilated areas, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to cause birth defects, reproductive harm, and other serious physical injury. Have adequate ventilation at all times. Wash hands and face thoroughly after handling and before coming in contact with food, chewing materials, and smoking material.

Regarding the use of wad fillers/spacers:

Spacer or filler wads serve the purpose of raising the shot column to a level that will allow for the forming of a good crimp. If a space filler is required for a particular load, the thickness and location of that filler will be indicated in the "Wad" column. As an example, it might be described in the following manner: "Win AA12R + 2- .135" cards under shot" or, "Rem RP12 + 1/8" felt spacer over shot" or "BP#3221000 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup" or, "Precision Reloading TUFW105 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup."

Fillers/spacers can be stacked if necessary, and the number needed may vary depending on the size of shot being used. If your crimp dishes in a bit, or bulges, you can add to or reduce the number of spacers to improve the crimp. Only slight adjustments, if any, will be necessary for this reason. Alliant does not recommend the addition of shot buffer to any of their loading data.

Alliant recommends that commercially available shotshell sealant be applied to both the primer and crimp areas to prevent moisture penetration.

Filler wad/spacers, shotshell primer/crimp sealant and additional information for handloaders is available from the following specialty reloading supply companies:

Ballistic Products, Inc.
Box 293
Corcoran, MN 55340
888/273–5623
www.ballisticproducts.com

Precision Reloading, LLC
124 S. Main ST.
Mitchell, SD 57301
605/996–9984
www.precisionreloading.com

Reloading Specialties, Inc.
Box 1130
Pine Island, MN 55963
507/356–8500

10 Federal Plastic Target Shell (With Fiber Basewad)

Hull #1

10 Gauge 3 ½"

10 Gauge 3 ½" Bismuth Shot Load Data

Hull I.D. Page 84
Reference Notes Page 103

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Win 209	Longshot	36.2	Rem SP12	1,225	8,200
1 7/8	Rem 209P	Longshot	35.6	Rem SP12	1,225	8,600
1 7/8	Fed 209A	Longshot	35.2	Rem SP12	1,225	9,400
1 7/8	CCI 209M	Longshot	35.0	Rem SP12	1,225	9,500
1 7/8	Win 209	Longshot	36.8	Rem SP12	1,250	8,900
1 7/8	Rem 209P	Longshot	36.2	Rem SP12	1,250	9,500
1 7/8	CCI 209M	Longshot	35.6	Rem SP12	1,250	9,900
1 7/8	Fed 209A	Longshot	35.8	Rem SP12	1,250	9,900
1 7/8	Win 209	Longshot	37.5	Rem SP12	1,275	9,700
1 7/8	CCI 209M	Longshot	36.2	Rem SP12	1,275	10,300
1 7/8	Rem 209P	Longshot	36.8	Rem SP12	1,275	10,300
1 7/8	Fed 209A	Longshot	36.5	Rem SP12	1,275	10,600
1 7/8	Win 209	Longshot	38.0	Rem SP12	1,300	10,700
1 7/8	Rem 209P	Longshot	37.4	Rem SP12	1,300	11,000

10 Remington SP Plastic Shell (With Yellow Plastic (Tall) Basewad)

Hull #2

10 Gauge 3 ½"

10 Gauge 3 ½" Bismuth Shot Load Data

Hull I.D. Page 84
Reference Notes Page 103

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Win 209	Longshot	35.0	Rem SP10 + 3/16" felt wad under shot	1,225	10,100
1 7/8	Rem 209P	Longshot	33.4	Rem SP10 + 3/16" felt wad under shot	1,225	10,400
1 7/8	CCI 209M	Longshot	33.3	Rem SP10 + 3/16" felt wad under shot	1,225	11,000
1 7/8	Win 209	Longshot	35.5	Rem SP10 + 3/16" felt wad	1,250	10,800
2	Rem 209P	Longshot	30.5	Rem SP10 + .070" card under shot	1,175	9,700
2	Win 209	Longshot	32.5	Rem SP10 + .070" card under shot	1,175	10,000
2	CCI 209M	Longshot	31.5	Rem SP10 + .070" card under shot	1,175	11,000
2	Fed 209A	Longshot	31.0	Rem SP10 + .070" card under shot	1,175	11,000
2	Win 209	Longshot	33.5	Rem SP10 + .070" card under shot	1,200	10,800

Hull #4
12 Gauge 3 ½"
Hull I.D. Page 85
Reference Notes Page 104

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

10

10 Gauge 3 ½"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Win 209	Longshot	36.1	Rem SP10	1,225	8,800
1 7/8	Rem 209P	Longshot	34.1	Rem SP10	1,225	10,200
1 7/8	Fed 209A	Longshot	34.0	Rem SP10	1,225	10,500
1 7/8	CCI 209M	Longshot	33.5	Rem SP10	1,225	10,600
1 7/8	Win 209	Longshot	36.8	Rem SP10	1,250	9,600
1 7/8	Rem 209P	Longshot	35.2	Rem SP10	1,250	10,500
1 7/8	CCI 209M	Longshot	34.8	Rem SP10	1,250	10,700
1 7/8	Fed 209A	Longshot	35.0	Rem SP10	1,250	10,700
1 7/8	Win 209	Longshot	37.4	Rem SP10	1,275	10,200
1 7/8	Rem 209P	Longshot	36.4	Rem SP10	1,275	10,800
1 7/8	Fed 209A	Longshot	36.0	Rem SP10	1,275	11,000
1 7/8	Win 209	Longshot	38.0	Rem SP10	1,300	10,900

Hull #5
12 Gauge 3 ½"
Hull I.D. Page 85
Reference Notes Page 104

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

12

12 Gauge 3 ½"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Rem 209P	Longshot	34.4	Win AA12	1,200	11,000
1 7/8	CCI 209M	Longshot	33.7	Win AA12	1,200	11,600
1 7/8	Rem 209P	Longshot	34.1	Fed 12S3	1,200	12,000
1 7/8	Fed 209A	Longshot	32.8	Win AA12	1,200	12,300
1 7/8	Fed 209A	Longshot	33.1	Fed 12S3	1,200	12,400
1 7/8	CCI 209M	Longshot	33.0	Fed 12S3	1,200	12,600
1 7/8	Rem 209P	Longshot	35.1	Win AA12	1,225	11,800
1 7/8	CCI 209M	Longshot	34.4	Win AA12	1,225	12,400
1 7/8	Rem 209P	Longshot	34.7	Fed 12S3	1,225	12,700
1 7/8	CCI 209M	Longshot	34.0	Fed 12S3	1,225	13,100
1 7/8	Fed 209A	Longshot	33.7	Fed 12S3	1,225	13,200
1 7/8	Fed 209A	Longshot	33.6	Win AA12	1,225	13,300
1 7/8	Rem 209P	Longshot	35.8	Win AA12	1,250	12,500
1 7/8	CCI 209M	Longshot	35.0	Win AA12	1,250	13,400
2	Rem 209P	Longshot	33.5	Fed 12S3	1,175	12,300
2	Win 209	Longshot	32.5	Win AA12F114	1,175	12,300
2	Win 209	Longshot	34.5	Fed 12S4	1,175	12,700
2	Win 209	Longshot	33.5	Fed 12S4	1,200	12,100
2	Rem 209P	Longshot	34.0	Fed 12S3	1,200	13,500

12 Gauge 3 ½" Bismuth Shot Load Data

Remington SP Plastic Shell (With Yellow Plastic Basewad)

Hull #6

12 Gauge 3 ½"

Hull I.D. Page 85
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Rem 209P	Longshot	32.5	Win AA12	1,200	11,900
1 7/8	Rem 209P	Longshot	32.0	Rem Fig 8	1,200	12,500
1 7/8	Fed 209A	Longshot	32.0	Win AA12	1,200	12,700
1 7/8	CCI 209M	Longshot	32.0	Win AA12	1,200	12,800
1 7/8	CCI 209M	Longshot	32.0	Rem Fig 8	1,200	12,800
1 7/8	Rem 209P	Longshot	32.5	Fed 12S3	1,200	12,800
1 7/8	CCI 209M	Longshot	32.5	Fed 12S3	1,200	13,100
1 7/8	Fed 209A	Longshot	32.0	Fed 12S3	1,200	13,300
1 7/8	Rem 209P	Longshot	33.5	Win AA12	1,225	12,800
1 7/8	CCI 209M	Longshot	33.5	Rem Fig 8	1,225	13,200
1 7/8	Rem 209P	Longshot	33.5	Rem Fig 8	1,225	13,200
2	Win 209	Longshot	32.0	Fed 12S4	1,175	13,700

12 Gauge 3 ½" Bismuth Shot Load Data

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

Hull #7

12 Gauge 3 ½"

Hull I.D. Page 86
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 7/8	Win 209	Longshot	34.3	Win AA12	1,200	11,100
1 7/8	Rem 209P	Longshot	33.0	Win AA12	1,200	12,000
1 7/8	Win 209	Longshot	33.6	Fed 12S3	1,200	12,000
1 7/8	Rem 209P	Longshot	33.2	Fed 12S3	1,200	12,200
1 7/8	CCI 209M	Longshot	32.0	Win AA12	1,200	12,400
1 7/8	Fed 209A	Longshot	32.2	Win AA12	1,200	12,400
1 7/8	Fed 209A	Longshot	33.0	Fed 12S3	1,200	12,700
1 7/8	CCI 209M	Longshot	32.2	Fed 12S3	1,200	13,000
1 7/8	Win 209	Longshot	35.2	Win AA12	1,225	11,600
1 7/8	Win 209	Longshot	34.5	Fed 12S3	1,225	12,400
1 7/8	Rem 209P	Longshot	33.8	Fed 12S3	1,225	12,800
1 7/8	Rem 209P	Longshot	33.7	Win AA12	1,225	12,800
1 7/8	Fed 209A	Longshot	33.4	Win AA12	1,225	13,100
1 7/8	Fed 209A	Longshot	34.0	Fed 12S3	1,225	13,300
1 7/8	CCI 209M	Longshot	33.0	Win AA12	1,225	13,700
1 7/8	Win 209	Longshot	36.0	Win AA12	1,250	12,100
1 7/8	Win 209	Longshot	36.0	Fed 12S3	1,250	12,800
1 7/8	Fed 209A	Longshot	34.5	Win AA12	1,250	13,200
1 7/8	Rem 209P	Longshot	34.4	Win AA12	1,250	13,500
1 7/8	Rem 209P	Longshot	34.5	Fed 12S3	1,250	13,600
2	Win 209	Longshot	32.5	Win AA12R + 2- .135" cards under shot	1,175	12,400
2	Win 209	Longshot	32.5	Win AA12F114	1,175	12,800

Hull #8

12 Gauge 3"

Hull I.D. Page 86

Reference Notes Page 105

Federal Hi-Power Plastic Shell (With 7/16" Paper Basewad)

12

12 Gauge 3"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Blue Dot	43.5	Rem SP12 + 1/4" felt spacer over shot	1,464	10,780
1 1/2	Win 209	Longshot	29.1	Win AA12F114	1,225	9,400
1 1/2	Win 209	Longshot	29.3	Fed 12S4	1,225	9,500
1 1/2	Rem 209P	Longshot	28.2	Fed 12S4	1,225	10,200
1 1/2	CCI 209M	Longshot	27.5	Win AA12F114	1,225	10,500
1 1/2	Rem 209P	Longshot	28.2	Win AA12F114	1,225	10,600
1 1/2	Fed 209A	Longshot	28.0	Fed 12S4	1,225	10,900
1 1/2	Fed 209A	Longshot	27.9	Win AA12F114	1,225	11,000
1 1/2	CCI 209M	Longshot	27.4	Fed 12S4	1,225	11,100
1 1/2	Win 209	Longshot	29.7	Win AA12F114	1,250	10,000
1 1/2	Win 209	Longshot	29.9	Fed 12S4	1,250	10,300
1 1/2	Rem 209P	Longshot	28.7	Fed 12S4	1,250	10,700
1 1/2	Rem 209P	Longshot	28.9	Win AA12F114	1,250	11,100
1 1/2	CCI 209M	Longshot	28.5	Win AA12F114	1,250	11,500
1 1/2	Fed 209A	Longshot	28.5	Fed 12S4	1,250	11,500
1 1/2	Fed 209A	Longshot	28.3	Win AA12F114	1,250	11,500
1 1/2	Win 209	Longshot	30.2	Win AA12F114	1,275	10,600
1 1/2	Win 209	Longshot	30.5	Fed 12S4	1,275	11,100
1 1/2	Rem 209P	Longshot	29.3	Fed 12S4	1,275	11,300
1 1/2	Rem 209P	Longshot	29.7	Win AA12F114	1,275	11,500
1 1/2	Win 209	Longshot	31.0	Win AA12F114	1,300	11,400
1 1/2	Fed 209A	Blue Dot	39.0	Rem RP12 + 1/8" felt spacer over shot	1,347	10,480
1 5/8	Win 209	Longshot	27.6	Win AA12R	1,175	9,600
1 5/8	Win 209	Longshot	27.8	Rem RP12	1,175	9,800
1 5/8	Fed 209A	Longshot	26.5	Win AA12R	1,175	10,000
1 5/8	CCI 209M	Longshot	27.1	Rem RP12	1,175	10,400
1 5/8	Rem 209P	Longshot	26.8	Win AA12R	1,175	10,500
1 5/8	Rem 209P	Longshot	27.0	Rem RP12	1,175	10,600
1 5/8	CCI 209M	Longshot	27.2	Rem RP12	1,175	10,800
1 5/8	Fed 209A	Longshot	26.3	Rem RP12	1,175	10,800
1 5/8	Win 209	Longshot	28.6	Rem RP12	1,200	10,300
1 5/8	Win 209	Longshot	28.2	Win AA12R	1,200	10,300
1 5/8	CCI 209M	Longshot	27.6	Win AA12R	1,200	10,800
1 5/8	Fed 209A	Longshot	27.6	Win AA12R	1,200	11,000
1 5/8	Rem 209P	Longshot	27.7	Rem RP12	1,200	11,100
1 5/8	CCI 209M	Longshot	27.6	Rem RP12	1,200	11,200
1 5/8	Rem 209P	Longshot	27.5	Win AA12R	1,200	11,200
1 5/8	Fed 209A	Longshot	27.2	Rem RP12	1,200	11,300
1 5/8	Win 209	Longshot	29.4	Rem RP12	1,225	10,700
1 5/8	Win 209	Longshot	29.0	Win AA12R	1,225	11,100
1 5/8	CCI 209M	Longshot	28.1	Win AA12R	1,225	11,300
1 5/8	Win 209	Longshot	30.5	Rem RP12	1,250	11,200

12 Gauge 3" Bismuth Shot Load Data

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

Hull #9

12 Gauge 3"

Hull I.D. Page 86
Reference Notes Page 106

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Blue Dot	46.0	Rem SP12 + 1/8" felt spacer over shot	1,507	10,785
1 1/2	Fed 209A	Blue Dot	38.0	Fed 12S4	1,310	10,180
1 1/2	Fed 209A	Blue Dot	40.0	Rem RP12 + 1/4" felt spacer over shot	1,359	10,865

12 Gauge 3" Bismuth Shot Load Data

Fiocchi Plastic Shell (With Plastic Basewad)

Hull #10

12 Gauge 3"

Hull I.D. Page 87
Reference Notes Page 106

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/2	Ched 209	Longshot	27.6	Rem RP12	1,225	9,400
1 1/2	Fio 616	Longshot	28.3	Win AA12R	1,225	9,900
1 1/2	Ched 209	Longshot	28.2	Win AA12R	1,225	10,000
1 1/2	Fio 616	Longshot	27.1	Rem RP12	1,225	10,500
1 1/2	Ched 209	Longshot	28.5	Rem RP12	1,250	10,100
1 1/2	Ched 209	Longshot	29.2	Win AA12R	1,250	10,500
1 1/2	Fio 616	Longshot	28.9	Win AA12R	1,250	10,600
1 1/2	Fio 616	Longshot	28.1	Rem RP12	1,250	11,000
1 1/2	Ched 209	Longshot	29.4	Rem RP12	1,275	10,700
1 1/2	Ched 209	Longshot	30.2	Win AA12R	1,275	10,900
1 1/2	Fio 616	Longshot	29.6	Win AA12R	1,275	11,500
1 1/2	Ched 209	Longshot	30.2	Rem RP12	1,300	11,200
1 1/2	Ched 209	Longshot	31.2	Win AA12R	1,300	11,400

12 Gauge 3" Bismuth Shot Load Data

Remington SPELV Plastic Shell (With Yellow Plastic Basewad)

Hull #11

12 Gauge 3"

Hull I.D. Page 87
Reference Notes Page 106

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Win 209	Blue Dot	44.0	Rem RP12 + 1/8" felt spacer over shot	1,473	10,730
1 3/8	Win 209	Blue Dot	50.0	Rem SP12	1,564	10,740
1 1/2	Win 209	Blue Dot	45.0	Rem RP12	1,441	10,750

Hull #13

12 Gauge 3"

Hull I.D. Page 88

Reference Notes Page 107

Remington SPLV Plastic Shell (With Plastic Basewad)

12

12 Gauge 3" Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/2	Win 209	Longshot	30.0	Fed 12S4	1,225	9,000
1 1/2	Win 209	Longshot	29.4	Win AA12F114	1,225	9,600
1 1/2	CCI 209M	Longshot	28.0	Fed 12S4	1,225	10,000
1 1/2	Rem 209P	Longshot	28.0	Fed 12S4	1,225	10,200
1 1/2	Rem 209P	Longshot	28.1	Win AA12F114	1,225	10,200
1 1/2	Fed 209A	Longshot	27.7	Win AA12F114	1,225	10,500
1 1/2	Fed 209A	Longshot	28.1	Fed 12S4	1,225	10,800
1 1/2	CCI 209M	Longshot	27.9	Win AA12F114	1,225	10,900
1 1/2	Win 209	Longshot	30.5	Fed 12S4	1,250	9,600
1 1/2	Win 209	Longshot	30.0	Win AA12F114	1,250	10,000
1 1/2	Rem 209P	Longshot	28.9	Fed 12S4	1,250	10,600
1 1/2	CCI 209M	Longshot	29.0	Fed 12S4	1,250	10,800
1 1/2	Rem 209P	Longshot	28.7	Win AA12F114	1,250	10,900
1 1/2	Fed 209A	Longshot	28.6	Fed 12S4	1,250	11,100
1 1/2	Fed 209A	Longshot	28.5	Win AA12F114	1,250	11,100
1 1/2	CCI 209M	Longshot	28.4	Win AA12F114	1,250	11,200
1 1/2	Win 209	Longshot	31.0	Fed 12S4	1,275	10,200
1 1/2	Win 209	Longshot	30.7	Win AA12F114	1,275	10,400
1 1/2	Rem 209P	Longshot	30.0	Fed 12S4	1,275	11,400
1 1/2	CCI 209M	Longshot	30.0	Fed 12S4	1,275	11,500
1 1/2	Rem 209P	Longshot	29.3	Win AA12F114	1,275	11,500
1 1/2	Win 209	Longshot	31.5	Fed 12S4	1,300	10,800
1 1/2	Win 209	Longshot	31.3	Win AA12F114	1,300	10,800
1 5/8	Win 209	Longshot	28.4	Win AA12R	1,175	9,200
1 5/8	Win 209	Longshot	29.0	Rem SP12	1,175	9,600
1 5/8	Rem 209P	Longshot	27.5	Rem SP12	1,175	10,100
1 5/8	CCI 209M	Longshot	26.0	Win AA12R	1,175	10,300
1 5/8	CCI 209M	Longshot	27.0	Rem SP12	1,175	10,400
1 5/8	Fed 209A	Longshot	26.9	Rem SP12	1,175	10,500
1 5/8	Fed 209A	Longshot	26.2	Win AA12R	1,175	10,600
1 5/8	Rem 209P	Longshot	27.4	Win AA12R	1,175	10,900
1 5/8	Win 209	Longshot	29.7	Rem SP12	1,200	9,900
1 5/8	Win 209	Longshot	29.0	Win AA12R	1,200	10,100
1 5/8	Rem 209P	Longshot	28.2	Rem SP12	1,200	10,700
1 5/8	CCI 209M	Longshot	27.8	Rem SP12	1,200	10,900
1 5/8	Fed 209A	Longshot	27.6	Rem SP12	1,200	11,000
1 5/8	Fed 209A	Longshot	27.2	Win AA12R	1,200	11,000
1 5/8	Rem 209P	Longshot	27.8	Win AA12R	1,200	11,000
1 5/8	CCI 209M	Longshot	27.0	Win AA12R	1,200	11,300
1 5/8	Win 209	Longshot	30.5	Rem SP12	1,225	10,300
1 5/8	Win 209	Longshot	29.6	Win AA12R	1,225	10,900
1 5/8	Rem 209P	Longshot	29.0	Rem SP12	1,225	11,300
1 5/8	Win 209	Longshot	31.3	Rem SP12	1,250	10,700

12

12 Gauge 3"
Bismuth Shot Load Data

Winchester Polyformed Plastic Shell (With White Plastic Basewad)

Hull #15
12 Gauge 3"
Hull I.D. Page 88
Reference Notes Page 107

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/2	Rem 209P	Longshot	31.1	Win AA12F114	1,225	8,100
1 1/2	CCI 209M	Longshot	30.8	Win AA12F114	1,225	8,700
1 1/2	Rem 209P	Longshot	31.1	Fed 12S4	1,225	9,000
1 1/2	CCI 209M	Longshot	30.0	Fed 12S4	1,225	9,300
1 1/2	Fed 209A	Longshot	29.6	Win AA12F114	1,225	9,500
1 1/2	Fed 209A	Longshot	29.3	Fed 12S4	1,225	9,800
1 1/2	Rem 209P	Longshot	31.6	Win AA12F114	1,250	8,900
1 1/2	CCI 209M	Longshot	31.4	Win AA12F114	1,250	9,200
1 1/2	Rem 209P	Longshot	31.5	Fed 12S4	1,250	9,500
1 1/2	CCI 209M	Longshot	30.6	Fed 12S4	1,250	9,900
1 1/2	Fed 209A	Longshot	30.3	Win AA12F114	1,250	10,200
1 1/2	Fed 209A	Longshot	29.8	Fed 12S4	1,250	10,400
1 1/2	CCI 209M	Longshot	32.0	Win AA12F114	1,275	9,600
1 1/2	Rem 209P	Longshot	31.9	Fed 12S4	1,275	10,100
1 1/2	CCI 209M	Longshot	31.3	Fed 12S4	1,275	10,700
1 1/2	Fed 209A	Longshot	30.9	Win AA12F114	1,275	10,800
1 1/2	Fed 209A	Longshot	30.3	Fed 12S4	1,275	10,900
1 1/2	CCI 209M	Longshot	32.0	Fed 12S4	1,300	11,300
1 1/2	Fed 209A	Longshot	31.0	Fed 12S4	1,300	11,400
1 5/8	Rem 209P	Longshot	31.1	Win AA12R	1,200	8,800
1 5/8	CCI 209M	Longshot	30.1	Rem SP12	1,200	9,400
1 5/8	Rem 209P	Longshot	29.5	Win AA12R	1,200	9,600
1 5/8	Fed 209A	Longshot	29.8	Rem SP12	1,200	9,800
1 5/8	CCI 209M	Longshot	29.1	Win AA12R	1,200	10,000
1 5/8	Fed 209A	Longshot	29.2	Win AA12R	1,200	10,100
1 5/8	Rem 209P	Longshot	31.7	Win AA12R	1,225	9,400
1 5/8	CCI 209M	Longshot	30.9	Rem SP12	1,225	10,100
1 5/8	Fed 209A	Longshot	30.4	Rem SP12	1,225	10,200
1 5/8	Rem 209P	Longshot	30.5	Win AA12R	1,225	10,200
1 5/8	CCI 209M	Longshot	30.0	Win AA12R	1,225	10,500
1 5/8	Fed 209A	Longshot	29.8	Win AA12R	1,225	10,900
1 5/8	Rem 209P	Longshot	32.2	Win AA12R	1,250	9,900
1 5/8	CCI 209M	Longshot	31.7	Rem SP12	1,250	10,700
1 5/8	Fed 209A	Longshot	31.5	Rem SP12	1,250	10,700
1 5/8	Rem 209P	Longshot	31.4	Win AA12R	1,250	10,700
1 5/8	CCI 209M	Longshot	30.9	Win AA12R	1,250	11,000
1 5/8	Fed 209A	Longshot	30.5	Win AA12R	1,250	11,500
1 5/8	CCI 209M	Longshot	31.8	Win AA12R	1,275	11,500

Hull #16
12 Gauge 2 ¾"
Hull I.D. Page 89
Reference Notes Page 108

Cheddite Plastic Shell (With Plastic Basewad)

12

12 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fio 616	Longshot	30.6	Win AA12R	1,275	7,300
1 1/4	Fio 616	Longshot	30.4	Rem RP12	1,275	8,300
1 1/4	Fio 616	Longshot	32.5	Win AA12R	1,325	8,600
1 1/4	Fio 616	Longshot	31.9	Rem RP12	1,325	9,400
1 1/4	Ched 209	Longshot	31.4	Win AA12R	1,350	7,200
1 1/4	Ched 209	Longshot	31.4	Rem RP12	1,350	7,700
1 1/4	Fio 616	Longshot	34.3	Win AA12R	1,375	9,900
1 1/4	Fio 616	Longshot	33.5	Rem RP12	1,375	10,400
1 1/4	Ched 209	Longshot	32.8	Win AA12R	1,400	8,400
1 1/4	Ched 209	Longshot	32.8	Rem RP12	1,400	8,800
1 1/4	Ched 209	Longshot	34.2	Win AA12R	1,450	9,700
1 1/4	Ched 209	Longshot	34.3	Rem RP12	1,450	9,900
1 1/4	Ched 209	Longshot	35.6	Win AA12R	1,500	10,900
1 1/4	Ched 209	Longshot	35.7	Rem RP12	1,500	11,000
1 3/8	Ched 209	Longshot	29.3	Win AA12R	1,275	8,100
1 3/8	Ched 209	Longshot	28.8	Rem RP12	1,275	8,500
1 3/8	Fio 616	Longshot	28.7	Win AA12R	1,275	8,500
1 3/8	Fio 616	Longshot	28.9	Rem RP12	1,275	8,600
1 3/8	Ched 209	Longshot	30.8	Win AA12R	1,325	9,200
1 3/8	Fio 616	Longshot	30.4	Win AA12R	1,325	9,700
1 3/8	Ched 209	Longshot	30.3	Rem RP12	1,325	9,800
1 3/8	Fio 616	Longshot	30.3	Rem RP12	1,325	9,800
1 3/8	Ched 209	Longshot	32.3	Win AA12R	1,375	10,300
1 3/8	Fio 616	Longshot	31.6	Rem RP12	1,375	10,900
1 3/8	Fio 616	Longshot	32.0	Win AA12R	1,375	10,900
1 3/8	Ched 209	Longshot	31.7	Rem RP12	1,375	11,000

Hull #17
12 Gauge 2 ¾"
Hull I.D. Page 89
Reference Notes Page 108

Federal Hi-Power Plastic Shell (With 7/16" Paper Basewad)

12

12 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Herco	27.0	Rem RP12 + 1/8" felt spacer over shot	1,300	9,510

Federal One-Piece Plastic Shell Target & Gold Medal Type

Hull #18

12 Gauge 2 ¾"

Hull I.D. Page 90
Reference Notes Page 109

12 Gauge 2 ¾" Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	CCI 209M	Longshot	28.2	Rem RP12	1,300	8,000
1 1/4	Win 209	Longshot	29.0	Rem RP12	1,300	8,000
1 1/4	Rem 209P	Longshot	28.2	Rem SP12	1,300	8,200
1 1/4	Fed 209A	Longshot	27.6	Win AA12R	1,300	8,400
1 1/4	Fed 209A	Longshot	27.2	Rem SP12	1,300	8,600
1 1/4	CCI 209M	Longshot	27.3	Win AA12R	1,300	8,800
1 1/4	Rem 209P	Longshot	27.6	Win AA12R	1,350	7,600
1 1/4	Win 209	Longshot	31.2	Win AA12R	1,350	8,000
1 1/4	Win 209	Longshot	30.3	Rem RP12	1,350	8,500
1 1/4	Rem 209P	Longshot	29.5	Rem SP12	1,350	9,200
1 1/4	CCI 209M	Longshot	29.3	Rem RP12	1,350	9,400
1 1/4	Fed 209A	Longshot	29.0	Win AA12R	1,350	9,400
1 1/4	Fed 209A	Longshot	28.7	Rem SP12	1,350	9,600
1 1/4	CCI 209M	Longshot	28.9	Win AA12R	1,350	9,800
1 1/4	Rem 209P	Longshot	29.4	Win AA12R	1,400	8,900
1 1/4	Win 209	Longshot	32.3	Win AA12R	1,400	9,100
1 1/4	Win 209	Longshot	32.0	Rem RP12	1,400	9,600
1 1/4	Rem 209P	Longshot	30.8	Rem SP12	1,400	10,300
1 1/4	Fed 209A	Longshot	30.4	Win AA12R	1,400	10,400
1 1/4	Fed 209A	Longshot	30.3	Rem SP12	1,400	10,600
1 1/4	CCI 209M	Longshot	30.4	Rem RP12	1,400	10,800
1 1/4	CCI 209M	Longshot	30.5	Win AA12R	1,400	10,900
1 1/4	Rem 209P	Longshot	31.2	Win AA12R	1,450	10,200
1 1/4	Win 209	Longshot	34.0	Win AA12R	1,450	10,600
1 1/4	Win 209	Longshot	33.7	Rem RP12	1,450	10,700
1 1/4	Fed 209A	Longshot	31.8	Win AA12R	1,450	11,400
1 3/8	Win 209	Longshot	27.8	Win AA12R	1,225	7,900
1 3/8	Win 209	Longshot	26.8	Rem RP12	1,225	8,000
1 3/8	CCI 209M	Longshot	25.6	Rem RP12	1,225	8,500
1 3/8	Rem 209P	Longshot	26.4	Win AA12R	1,225	8,500
1 3/8	CCI 209M	Longshot	25.4	Win AA12R	1,225	8,600
1 3/8	Rem 209P	Longshot	26.3	Rem RP12	1,225	8,700
1 3/8	Fed 209A	Longshot	25.2	Win AA12R	1,225	9,000
1 3/8	Fed 209A	Longshot	25.5	Rem RP12	1,225	9,000
1 3/8	Win 209	Longshot	28.8	Win AA12R	1,275	8,600
1 3/8	Win 209	Longshot	28.0	Rem RP12	1,275	8,900
1 3/8	CCI 209M	Longshot	27.0	Win AA12R	1,275	9,700
1 3/8	Rem 209P	Longshot	27.5	Rem RP12	1,275	9,700
1 3/8	Rem 209P	Longshot	27.7	Win AA12R	1,275	9,700
1 3/8	CCI 209M	Longshot	27.2	Rem RP12	1,275	9,800
1 3/8	Fed 209A	Longshot	27.1	Win AA12R	1,275	10,200
1 3/8	Fed 209A	Longshot	27.0	Rem RP12	1,275	10,200
1 3/8	Win 209	Longshot	30.0	Win AA12R	1,325	10,200
1 3/8	Win 209	Longshot	29.7	Rem RP12	1,325	10,500
1 3/8	Rem 209P	Longshot	28.7	Rem RP12	1,325	10,800
1 3/8	Rem 209P	Longshot	29.9	Win AA12R	1,325	10,800
1 3/8	CCI 209M	Longshot	28.7	Rem RP12	1,325	10,900

Hull #18 (Continued)

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell Target & Gold Medal Type

12

12 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	CCI 209M	Longshot	28.6	Win AA12R	1,325	11,200
1 3/8	Fed 209A	Longshot	29.0	Win AA12R	1,325	11,300
1 3/8	Fed 209A	Longshot	28.4	Rem RP12	1,325	11,400
1 3/8	Win 209	Longshot	31.8	Rem RP12	1,375	11,500
1-3/8	Win 209	Longshot	31.8	Win AA12R	1,375	11,500

Hull #22

12 Gauge 2 ¾"

Hull I.D. Page 92

Reference Notes Page 110

Fiocchi Plastic Shell (With 7mm Basewad)

12

12 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Ched 209	Longshot	29.4	Win AA12R	1,300	7,500
1 1/4	Ched 209	Longshot	29.1	Rem RP12	1,300	7,900
1 1/4	Fio 616	Longshot	30.5	Win AA12R	1,350	8,300
1 1/4	Ched 209	Longshot	30.8	Win AA12R	1,350	8,500
1 1/4	Fio 616	Longshot	30.4	Rem RP12	1,350	8,600
1 1/4	Ched 209	Longshot	30.6	Rem RP12	1,350	8,900
1 1/4	Ched 209	Longshot	32.3	Win AA12R	1,400	9,500
1 1/4	Fio 616	Longshot	31.7	Win AA12R	1,400	9,500
1 1/4	Ched 209	Longshot	32.0	Rem RP12	1,400	9,700
1 1/4	Fio 616	Longshot	31.9	Rem RP12	1,400	9,900
1 1/4	Ched 209	Longshot	33.8	Win AA12R	1,450	10,500
1 1/4	Ched 209	Longshot	33.5	Rem RP12	1,450	10,700
1 1/4	Fio 616	Longshot	33.0	Win AA12R	1,450	10,700
1 1/4	Fio 616	Longshot	33.5	Rem RP12	1,450	11,300
1 3/8	Fio 616	Longshot	26.7	Rem RP12	1,225	7,600
1 3/8	Fio 616	Longshot	27.2	Win AA12R	1,225	7,900
1 3/8	Ched 209	Longshot	26.7	Win AA12R	1,225	8,200
1 3/8	Ched 209	Longshot	27.1	Rem RP12	1,225	8,300
1 3/8	Fio 616	Longshot	28.3	Win AA12R	1,275	9,200
1 3/8	Ched 209	Longshot	28.3	Win AA12R	1,275	9,300
1 3/8	Fio 616	Longshot	28.3	Rem RP12	1,275	9,300
1 3/8	Ched 209	Longshot	28.7	Rem RP12	1,275	9,400
1 3/8	Ched 209	Longshot	29.8	Win AA12R	1,325	10,400
1 3/8	Ched 209	Longshot	30.3	Rem RP12	1,325	10,500
1 3/8	Fio 616	Longshot	30.8	Win AA12R	1,325	10,600
1 3/8	Fio 616	Longshot	30.0	Rem RP12	1,325	11,000

12

12 Gauge 2 ¾"
Bismuth Shot Load Data

Remington One-Piece Premier RTL, STS, Nitro 27 Plastic Target Shells

Hull #24
12 Gauge 2 ¾"
Hull I.D. Page 93
Reference Notes Page 111

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Rem 209P	Herco	26.0	Rem RP12 + 1/8" felt spacer over shot	1,292	10,475
1 1/4	Win 209	Longshot	26.3	Rem RP12	1,250	7,900
1 1/4	Win 209	Longshot	26.5	Win AA12R	1,250	8,000
1 1/4	Rem 209P	Longshot	24.8	Win AA12R	1,250	8,100
1 1/4	CCI 209M	Longshot	25.0	Rem RP12	1,250	8,400
1 1/4	Rem 209P	Longshot	25.9	Rem RP12	1,250	8,400
1 1/4	Fed 209A	Longshot	24.9	Win AA12R	1,250	8,600
1 1/4	CCI 209M	Longshot	25.4	Win AA12R	1,250	8,700
1 1/4	Fed 209A	Longshot	25.1	Rem RP12	1,250	9,100
1 1/4	CCI 209M	Longshot	26.9	Win AA12R	1,300	8,700
1 1/4	Win 209	Longshot	28.0	Rem RP12	1,300	8,900
1 1/4	Win 209	Longshot	28.0	Win AA12R	1,300	9,000
1 1/4	CCI 209M	Longshot	26.5	Rem RP12	1,300	9,300
1 1/4	Rem 209P	Longshot	26.8	Win AA12R	1,300	9,400
1 1/4	Rem 209P	Longshot	27.4	Rem RP12	1,300	9,600
1 1/4	Fed 209A	Longshot	26.7	Rem RP12	1,300	10,000
1 1/4	Fed 209A	Longshot	26.9	Win AA12R	1,300	10,000
1 1/4	Win 209	Longshot	29.8	Rem RP12	1,350	9,900
1 1/4	Win 209	Longshot	29.7	Win AA12R	1,350	10,100
1 1/4	CCI 209M	Longshot	28.1	Rem RP12	1,350	10,200
1 1/4	CCI 209M	Longshot	28.4	Win AA12R	1,350	10,500
1 1/4	Rem 209P	Longshot	28.9	Rem RP12	1,350	10,700
1 1/4	Rem 209P	Longshot	28.8	Win AA12R	1,350	10,700
1 1/4	Fed 209A	Longshot	28.3	Rem RP12	1,350	11,000
1 1/4	Fed 209A	Longshot	28.5	Win AA12R	1,350	11,400
1 1/4	Win 209	Longshot	31.5	Rem RP12	1,400	11,000
1 1/4	Win 209	Longshot	31.5	Win AA12R	1,400	11,200
1 1/4	Rem 209P	Blue Dot	39.5	CB1138-12	1,421	10,165
1 3/8	Win 209	Longshot	27.5	Rem RP12	1,225	8,800
1 3/8	Win 209	Longshot	26.3	Win AA12R	1,225	9,000
1 3/8	Rem 209P	Longshot	26.0	Win AA12R	1,225	9,500
1 3/8	Fed 209A	Longshot	25.0	Rem RP12	1,225	10,200
1 3/8	Rem 209P	Longshot	25.1	Rem RP12	1,225	10,200
1 3/8	CCI 209M	Longshot	24.3	Rem RP12	1,225	10,300
1 3/8	CCI 209M	Longshot	25.4	Win AA12R	1,225	10,300
1 3/8	Fed 209A	Longshot	24.6	Win AA12R	1,225	10,300
1 3/8	Win 209	Longshot	28.3	Rem RP12	1,275	10,800
1 3/8	Win 209	Longshot	27.8	Win AA12R	1,275	10,800
1 3/8	Rem 209P	Longshot	27.0	Win AA12R	1,275	10,900
1 3/8	Rem 209P	Longshot	26.7	Rem RP12	1,275	11,000
1 3/8	CCI 209M	Longshot	26.3	Win AA12R	1,275	11,300
1 3/8	CCI 209M	Longshot	25.7	Rem RP12	1,275	11,400
1 3/8	Fed 209A	Longshot	26.3	Rem RP12	1,275	11,500
1 3/8	Fed 209A	Longshot	26.0	Win AA12R	1,275	11,500

Hull #28

12 Gauge 2 ¾"

Hull I.D. Page 95

Reference Notes Page 113

Winchester Compression Formed Plastic AA & AA-Type Shell

12

12 Gauge 2 ¾"

Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Win 209	Longshot	26.4	Rem RP12	1,250	7,500
1 1/4	Win 209	Longshot	26.7	Win AA12R	1,250	7,700
1 1/4	Fed 209A	Longshot	26.7	Rem RP12	1,250	8,000
1 1/4	Fed 209A	Longshot	25.1	Win AA12R	1,250	8,200
1 1/4	Rem 209P	Longshot	25.2	Rem RP12	1,250	8,700
1 1/4	Rem 209P	Longshot	25.0	Win AA12R	1,250	8,800
1 1/4	CCI 209M	Longshot	25.2	Rem RP12	1,250	9,100
1 1/4	CCI 209M	Longshot	25.2	Win AA12R	1,250	9,200
1 1/4	Win 209	Longshot	27.8	Rem RP12	1,300	8,800
1 1/4	Win 209	Longshot	27.6	Win AA12R	1,300	8,900
1 1/4	Fed 209A	Longshot	27.8	Rem RP12	1,300	9,100
1 1/4	Fed 209A	Longshot	26.7	Win AA12R	1,300	9,100
1 1/4	Rem 209P	Longshot	26.5	Rem RP12	1,300	9,500
1 1/4	Rem 209P	Longshot	26.6	Win AA12R	1,300	9,900
1 1/4	CCI 209M	Longshot	26.6	Rem RP12	1,300	10,100
1 1/4	CCI 209M	Longshot	26.4	Win AA12R	1,300	10,600
1 1/4	Fed 209A	Longshot	28.3	Win AA12R	1,350	10,200
1 1/4	Win 209	Longshot	29.2	Rem RP12	1,350	10,200
1 1/4	Fed 209A	Longshot	28.8	Rem RP12	1,350	10,300
1 1/4	Rem 209P	Longshot	28.2	Rem RP12	1,350	10,500
1 1/4	Win 209	Longshot	29.0	Win AA12R	1,350	10,700
1 1/4	Rem 209P	Longshot	28.3	Win AA12R	1,350	11,000
1 1/4	CCI 209M	Longshot	28.1	Rem RP12	1,350	11,200
1 1/4	Rem 209P	Longshot	29.8	Rem RP12	1,400	11,200
1 1/4	Win 209	Longshot	30.5	Win AA12R	1,400	11,200
1 1/4	Win 209	Longshot	30.1	Rem RP12	1,400	11,300
1 1/4	Fed 209A	Longshot	29.9	Rem RP12	1,400	11,400
1 1/4	Fed 209A	Longshot	29.9	Win AA12R	1,400	11,400
1 3/8	Rem 209P	Longshot	24.8	Rem RP12	1,225	9,500
1 3/8	Win 209	Longshot	26.0	Rem RP12	1,225	9,800
1 3/8	Win 209	Longshot	26.0	Win AA12R	1,225	10,000
1 3/8	Fed 209A	Longshot	25.2	Rem RP12	1,225	10,300
1 3/8	Fed 209A	Longshot	24.9	Win AA12R	1,225	10,400
1 3/8	Rem 209P	Longshot	25.0	Win AA12R	1,225	10,600
1 3/8	CCI 209M	Longshot	25.0	Rem RP12	1,225	11,300
1 3/8	CCI 209M	Longshot	24.5	Win AA12R	1,225	11,400
1 3/8	Rem 209P	Longshot	26.5	Rem RP12	1,275	10,900

16 Gauge 2 3/4" Bismuth Shot Load Data

Federal Hi-Power Plastic Shell (With Paper Basewad)

Hull #30

16 Gauge 2 3/4"

Hull I.D. Page 96
Reference Notes Page 114

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fed 209A	Longshot	25.0	Rem SP16	1,300	8,000
1	Rem 209P	Longshot	27.0	Rem SP16	1,350	8,500
1	Fed 209A	Longshot	26.0	Rem SP16	1,350	8,900
1	Fed 209A	Longshot	27.0	Rem SP16	1,400	9,800

16 Gauge 2 3/4" Bismuth Shot Load Data

Fiocchi Plastic Shell (With Plastic Basewad)

Hull #31

16 Gauge 2 3/4"

Hull I.D. Page 96
Reference Notes Page 114

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Fio 616	Longshot	26.0	G/BP 16	1,350	8,800
1	Ched 209	Longshot	28.0	G/BP 16	1,400	9,500
1	Fio 616	Longshot	27.2	G/BP 16	1,400	10,200

16 Gauge 2 3/4" Bismuth Shot Load Data

Fiocchi Plastic Shell (With Plastic Basewad)

Hull #32

16 Gauge 2 3/4"

Hull I.D. Page 96
Reference Notes Page 114

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Longshot	20.5	Rem SP16	1,200	8,500
1	Rem 209P	Longshot	19.5	Rem SP16	1,200	9,100
1	Win 209	Longshot	21.6	Rem SP16	1,250	9,400
1	Rem 209P	Longshot	21.1	Rem SP16	1,250	10,000
1	Win 209	Longshot	22.6	Rem SP16	1,300	10,300
1	Rem 209P	Longshot	22.4	Rem SP16	1,300	10,800
1	Win 209	Longshot	23.7	Rem SP16	1,350	11,200

Hull #34

20 Gauge 3"

Hull I.D. Page 97

Reference Notes Page 115

Federal Hi-Power Plastic Shell (With Paper Basewad)

20

20 Gauge 3"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	CCI 209M	Longshot	21.7	Fed 20S1	1,300	10,100
1	Fed 209A	Longshot	21.7	Fed 20S1	1,300	10,100
1	CCI 209M	Longshot	22.4	Fed 20S1	1,325	11,200
1	Fed 209A	Longshot	21.5	Fed 20S1	1,325	11,200
1	CCI 209M	Longshot	23.0	Fed 20S1	1,350	12,000
1	Fed 209A	Longshot	23.2	Fed 20S1	1,350	12,000
1 1/8	Win 209	Longshot	20.1	Rem SP20	1,200	8,700
1 1/8	Rem 209P	Longshot	19.9	Rem SP20	1,200	9,100
1 1/8	Win 209	Longshot	20.3	Win AA20F1	1,200	9,100
1 1/8	CCI 209M	Longshot	19.9	Win AA20F1	1,200	9,300
1 1/8	Fed 209A	Longshot	20.2	Win AA20F1	1,200	9,900
1 1/8	Fed 209A	Longshot	19.2	Rem SP20	1,200	10,200
1 1/8	Rem 209P	Longshot	19.9	Win AA20F1	1,200	10,300
1 1/8	CCI 209M	Longshot	19.5	Rem SP20	1,200	10,600
1 1/8	Win 209	Longshot	20.8	Rem SP20	1,225	10,000
1 1/8	Win 209	Longshot	21.1	Win AA20F1	1,225	10,600
1 1/8	Rem 209P	Longshot	21.0	Rem SP20	1,225	10,700
1 1/8	CCI 209M	Longshot	20.6	Win AA20F1	1,225	10,900
1 1/8	Rem 209P	Longshot	20.6	Win AA20F1	1,225	10,900
1 1/8	CCI 209M	Longshot	20.5	Rem SP20	1,225	11,100
1 1/8	Fed 209A	Longshot	19.9	Rem SP20	1,225	11,100
1 1/8	Fed 209A	Longshot	20.6	Win AA20F1	1,225	11,200
1 1/8	Rem 209P	Longshot	22.0	Rem SP20	1,250	11,500
1 1/8	Rem 209P	Longshot	21.3	Win AA20F1	1,250	11,500
1 1/8	Win 209	Longshot	21.9	Win AA20F1	1,250	11,500
1 1/8	Win 209	Longshot	21.8	Rem SP20	1,250	11,600
1 1/8	CCI 209M	Longshot	21.3	Win AA20F1	1,250	11,700
1 1/8	CCI 209M	Longshot	21.5	Rem SP20	1,250	11,900
1 1/8	Fed 209A	Longshot	20.7	Rem SP20	1,250	12,000

20 Remington Premier Plastic Shell

Hull #35

20 Gauge 3"

Hull I.D. Page 97

Reference Notes Page 115

20 Gauge 3"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Longshot	18.3	Rem SP20	1,200	10,300
1	Rem 209P	Longshot	18.0	Rem SP20	1,200	10,500
1	CCI 209M	Longshot	17.6	Rem SP20	1,200	10,600
1	Fed 209A	Longshot	17.8	Rem SP20	1,200	11,000
1	Win 209	Longshot	18.8	Rem SP20	1,220	10,800
1	Rem 209P	Longshot	18.5	Rem SP20	1,220	11,100
1	CCI 209M	Longshot	18.2	Rem SP20	1,220	11,200
1	Fed 209A	Longshot	18.4	Rem SP20	1,220	11,600
1	Win 209	Longshot	19.3	Rem SP20	1,250	11,200
1	Rem 209P	Longshot	19.0	Rem SP20	1,250	11,800
1	Fed 209A	Longshot	19.0	Rem SP20	1,250	11,900
1	CCI 209M	Longshot	19.0	Rem SP20	1,250	12,000
1	Win 209	Longshot	19.7	Rem SP20	1,275	11,600

20 Cheddite Plastic Shell (With Plastic Basewad)

Hull #37

20 Gauge 2 ¾"

Hull I.D. Page 97

Reference Notes Page 115

20 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Ched 209	Longshot	21.0	Rem SP20	1,350	9,300
7/8	Fio 616	Longshot	21.0	Rem SP20	1,350	10,000

20 Federal Plastic Target Shell (With Paper Basewad)

Hull #38

20 Gauge 2 ¾"

Hull I.D. Page 98

Reference Notes Page 116

20 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	Longshot	22.0	Rem SP20	1,325	8,500
7/8	Rem 209P	Longshot	22.0	Rem SP20	1,350	9,400
7/8	CCI 209M	Longshot	21.0	Rem SP20	1,350	9,600
7/8	Fed 209A	Longshot	21.5	Rem SP20	1,350	10,000

Hull #39
20 Gauge 2 ¾"
Hull I.D. Page 98
Reference Notes Page 116

Fiocchi Plastic Shell (With Plastic Basewad)

20
20 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Ched 209	Longshot	22.0	Rem SP20	1,350	9,700
7/8	Fio 616	Longshot	21.5	Rem SP20	1,350	9,800

Hull #40
20 Gauge 2 ¾"
Hull I.D. Page 98
Reference Notes Page 116

Remington Premier STS, RXP Plastic Target Shell

20
20 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Rem 209P	Longshot	17.7	Rem SP20	1,250	10,100
7/8	Win 209	Longshot	19.0	Rem SP20	1,250	10,500
7/8	CCI 209M	Longshot	17.5	Rem SP20	1,250	10,900
7/8	Fed 209A	Longshot	17.5	Rem SP20	1,250	11,000
7/8	CCI 209M	Longshot	18.5	Rem SP20	1,300	11,400
7/8	Win 209	Longshot	19.5	Rem SP20	1,300	11,400
7/8	Rem 209P	Longshot	18.7	Rem SP20	1,300	11,500
7/8	Fed 209A	Longshot	18.2	Rem SP20	1,300	11,600

Hull #41
20 Gauge 2 ¾"
Hull I.D. Page 99
Reference Notes Page 117

Winchester Compression Formed Plastic AA & AA-Type Shell

20
20 Gauge 2 ¾"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
7/8	Win 209	Longshot	18.0	Rem SP20	1,250	10,000
7/8	CCI 209M	Longshot	17.2	Rem SP20	1,250	10,500
7/8	Rem 209P	Longshot	17.6	Rem SP20	1,250	10,600
7/8	Fed 209A	Longshot	17.3	Rem SP20	1,250	10,900
7/8	CCI 209M	Longshot	18.2	Rem SP20	1,300	11,700
7/8	Rem 209P	Longshot	18.6	Rem SP20	1,300	11,700

28

28 Gauge 2 ¾"
Bismuth Shot Load Data

Federal Plastic Target Shell (With Paper Basewad)

Hull #43
28 Gauge 2 ¾"
Hull I.D. Page 99
Reference Notes Page 118

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Win 209	Longshot	15.1	Fed 28S1	1,225	10,800
3/4	CCI 209M	Longshot	14.8	Fed 28S1	1,225	11,200
3/4	Rem 209P	Longshot	14.4	Fed 28S1	1,225	11,300
3/4	Fed 209A	Longshot	14.9	Fed 28S1	1,225	11,400
3/4	Win 209	Longshot	15.5	Fed 28S1	1,250	11,300
3/4	Rem 209P	Longshot	15.0	Fed 28S1	1,250	11,800
3/4	CCI 209M	Longshot	15.5	Fed 28S1	1,250	11,900
3/4	Fed 209A	Longshot	15.3	Fed 28S1	1,250	11,900
3/4	Rem 209P	Longshot	15.5	Fed 28S1	1,275	12,200

28

28 Gauge 2 ¾"
Bismuth Shot Load Data

Remington One-Piece Plastic Premier STS Shell

Hull #44
28 Gauge 2 ¾"
Hull I.D. Page 100
Reference Notes Page 118

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
3/4	Win 209	Longshot	14.5	Win AA28	1,225	10,900
3/4	Rem 209P	Longshot	14.5	PC 28	1,225	11,300
3/4	Rem 209P	Longshot	14.1	Win AA28	1,225	11,300
3/4	Rem 209P	Longshot	14.5	Rem PT28	1,225	11,500
3/4	CCI 209M	Longshot	14.5	Rem PT28	1,225	11,600
3/4	Fed 209A	Longshot	14.5	Rem PT28	1,225	11,900
3/4	CCI 209M	Longshot	14.5	Win AA28	1,225	12,000
3/4	Fed 209A	Longshot	14.5	Win AA28	1,225	12,200
3/4	Fed 209A	Longshot	14.5	PC 28	1,225	12,300
3/4	Rem 209P	Longshot	14.5	Win AA28	1,250	11,800

Hull #48

410 Gauge 3"

Hull I.D. Page 101

Reference Notes Page 119

Federal Plastic Shell (With Paper Basewad)

410

410 Gauge 3"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
5/8	Fed 209A	Lil' Gun	13.4	Fed 410SC	1,175	12,700

Hull #49

410 Gauge 3"

Hull I.D. Page 101

Reference Notes Page 120

Remington Plastic Shell (With Plastic Basewad)

410

410 Gauge 3"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
5/8	Rem 209P	Lil' Gun	13.2	Rem SP410	1,175	12,600

Hull #50

410 Gauge 3"

Hull I.D. Page 101

Reference Notes Page 120

Winchester Compression Formed Plastic AA-Type Shell

410

410 Gauge 3"
Bismuth Shot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
5/8	Win 209	Lil' Gun	13.1	Win AA41	1,175	13,200

HeviShot Data

About the HeviShot reloading data in this section

CAUTION! Do not reload any shotshells until you read and understand the contents in this manual.

WARNING! Data shown in this section must only be used with HeviShot shot.

Ballistic data in this section was developed in the Alliant and Hodgdon ballistics laboratories using listed components under strictly controlled conditions.

- **Substitutions of components could cause excessive or dangerous pressures, which could damage or destroy your firearm or cause serious personal injury or even death to the user and/or bystanders— therefore, NEVER substitute components when loading shotshells using this data.**
- **Your reloads must contain the exact combinations listed in this manual. NEVER EXCEED charge recommendations in this manual.**
- **Both powder charge and HeviShot shot charge should be individually weighed with a quality scale to insure compliance to the load data.**
- **Shotshell cases (hulls) that cannot be positively identified should not be reloaded. Contact the manufacturer and request additional identifying information.**
- **Always refer to the double check list at the end of chapter 7 before actual reloading.**
- **Always match the height and shape of the hull's basewad to the correct I.D. picture in the full color I.D. section of this manual to select the appropriate HeviShot reloading data. Sectioning the hull is required to do this.**

You must also always remember:

1. Establish a routine for reloading. It will result in more uniform loads and less chance of error.
2. Some primers are more powerful than others (they produce more gas at a higher temperature). Use only the primers specified herein.
3. Shotshell wads differ in their sealing ability. Use only the load combinations specified herein.
4. Use only the brands of powder and components shown in the data sections. Do not substitute other types.
5. Discharging firearms in poorly ventilated areas, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to cause birth defects, reproductive harm, and other serious physical injury. Have adequate ventilation at all times. Wash hands and face thoroughly after handling and before coming in contact with food, chewing materials, and smoking material.

Regarding the use of wad fillers/spacers:

Spacer or filler wads serve the purpose of raising the shot column to a level that will allow for the forming of a good crimp. If a space filler is required for a particular load, the thickness and location of that filler will be indicated in the "Wad" column. As an example, it might be described in the following manner: "Win AA12R + 2- .135" cards under shot" or, "Rem RP12 + 1/8" felt spacer over shot" or "BP#3221000 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup" or, "Precision Reloading TUFW105 + 3 (three) 12-gauge, 1/8" felt spacers to the inside bottom of the shot cup."

Fillers/spacers can be stacked if necessary, and the number needed may vary depending on the size of shot being used. If your crimp dishes in a bit, or bulges, you can add to or reduce the number of spacers to improve the crimp. Only slight adjustments, if any, will be necessary for this reason. Alliant does not recommend the addition of shot buffer to any of their loading data.

Alliant recommends that commercially available shotshell sealant be applied to both the primer and crimp areas to prevent moisture penetration.

Filler wad/spacers, shotshell primer/crimp sealant and additional information for handloaders is available from the following specialty reloading supply companies:

Ballistic Products, Inc.
Box 293
Corcoran, MN 55340
888/273–5623
www.ballisticproducts.com

Precision Reloading, LLC
124 S. Main ST.
Mitchell, SD 57301
605/996–9984
www.precisionreloading.com

Reloading Specialties, Inc.
Box 1130
Pine Island, MN 55963
507/356–8500

Hull #1

10 Gauge 3 ½"

Hull I.D. Page 84

Reference Notes Page 103

Federal Plastic Target Shell #4, #2, #BB (With Fiber Basewad)

10

10 Gauge 3 ½" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 5/8	Fed 209A	Longshot	33.0	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	7,400
1 5/8	Rem 209P	Longshot	31.9	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	8,400
1 5/8	Fed 209A	Longshot	34.5	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,250	8,500
1 5/8	Rem 209P	Longshot	34.0	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,250	9,100
1 5/8	Fed 209A	Longshot	36.0	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	9,600
1 5/8	Rem 209P	Longshot	36.0	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	9,800
1 5/8	Rem 209P	Longshot	38.0	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,350	10,500
1 3/4	Rem 209P	Longshot	31.8	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,200	8,900
1 3/4	Fed 209A	Longshot	32.8	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,200	9,200
1 3/4	Fed 209A	Longshot	34.0	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,250	10,600
1 3/4	Rem 209P	Longshot	33.8	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,250	10,800

10 Gauge 3 ½" HeviShot Load Data

Remington SP Plastic Shell #4, #2, #BB (With Yellow Plastic (Tall) Basewad)

Hull #2
10 Gauge 3 ½"
Hull I.D. Page 84
Reference Notes Page 103

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 5/8	Rem 209P	Longshot	27.5	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,150	10,000
1 5/8	Fed 209A	Longshot	27.0	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,150	10,800
1 5/8	Rem 209P	Longshot	28.8	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,175	10,000
1 5/8	Fed 209A	Longshot	28.5	TPS 322-7704 + 1-20GA 1/4" FELT + 1-12GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,175	10,400

10 Gauge 3 ½" HeviShot Load Data

Federal One-Piece Plastic Shell #4, #2, #BB (With .090 Integral Basewad)

Hull #5
12 Gauge 3 ½"
Hull I.D. Page 85
Reference Notes Page 104

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Longshot	27.2	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C	1,200	9,100
1 1/4	Rem 209P	Longshot	30.0	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C.	1,200	9,300
1 1/4	Rem 209P	Longshot	30.7	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C.	1,250	9,900
1 1/4	Fed 209A	Longshot	28.6	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C.	1,250	10,200
1 1/4	Rem 209P	Longshot	31.8	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C.	1,300	10,800
1 1/4	Fed 209A	Longshot	30.0	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C.	1,300	11,300

Hull #5 (Continued)
12 Gauge 3 ½"
Hull I.D. Page 85
Reference Notes Page 104

Federal One-Piece Plastic Shell #4, #2, #BB (With .090 Integral Basewad)

12
12 Gauge 3 ½" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Rem 209P	Longshot	33.0	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C.	1,350	11,700
1 1/4	Fed 209A	Longshot	31.4	TPS 322-7703 + 2-20GA 3/8" FELT + 1-20GA 1/8" FELT + 20GR #47 BUFFER + O.C.	1,350	12,500
1 3/8	Rem 209P	Longshot	29.5	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	8,200
1 3/8	Fed 209A	Longshot	28.0	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	9,600

Hull #6
12 Gauge 3 ½"
Hull I.D. Page 85
Reference Notes Page 105

Remington SP Plastic Shell #4, #2, #BB (With Yellow Plastic (Tall) Basewad)

12
12 Gauge 3 ½" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Longshot	26.1	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	9,500
1 1/4	Fed 209A	Longshot	26.8	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	9,500
1 1/4	Rem 209P	Longshot	28.0	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,250	10,300
1 1/4	Fed 209A	Longshot	27.4	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,250	11,000
1 1/4	Rem 209P	Longshot	29.3	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	11,200
1 1/4	Fed 209A	Longshot	28.6	TPS 322-7703 + 2-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	12,200
1 3/8	Rem 209P	Longshot	26.9	TPS 322-7703 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	11,300
1 3/8	Fed 209A	Longshot	27.1	TPS 322-7703 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	11,400

Continued

12 Gauge 3 ½" HeviShot Load Data

Remington SP Plastic Shell #4, #2, #BB (With Yellow Plastic (Tall) Basewad)

(Continued) **Hull #6**

12 Gauge 3 ½"

Hull I.D. Page 85
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Rem 209P	Longshot	28.1	TPS 322-7703 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + 0.C.	1,250	12,500
1 3/8	Fed 209A	Longshot	28.0	TPS 322-7703 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + 0.C.	1,250	12,900

12 Gauge 3" HeviShot Load Data

Federal Hi-Power Plastic Shell #4, #2, #BB (With 7/16" Paper Basewad)

Hull #8

12 Gauge 3"

Hull I.D. Page 86
Reference Notes Page 105

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Win 209	Longshot	23.5	TPS 322-7702 + 1-20GA 1/4" FELT + 20GR #47 BUFFER + 0.C.	1,200	9,900
1 1/8	Fed 209A	Longshot	23.0	TPS 322-7702 + 1-20GA 1/4" FELT + 20GR #47 BUFFER + 0.C.	1,200	11,000
1 1/8	Fed 209A	Longshot	26.0	TPS 322-7702 + 1-20GA 1/2" FELT + 20GR #47 BUFFER + 0.C.	1,275	9,800
1 1/8	Win 209	Longshot	27.2	TPS 322-7702 + 1-20GA 1/2" FELT + 20GR #47 BUFFER + 0.C.	1,300	9,900
1 1/8	Fed 209A	Longshot	26.4	TPS 322-7702 + 1-20GA 1/2" FELT + 20GR #47 BUFFER + 0.C.	1,300	10,400
1 1/8	Win 209	Longshot	27.8	TPS 322-7702 + 1-20GA 1/2" FELT + 20GR #47 BUFFER + 0.C.	1,325	10,400
1 1/8	Fed 209A	Longshot	26.8	TPS 322-7702 + 1-20GA 1/2" FELT + 20GR #47 BUFFER + 0.C.	1,325	10,900
1 3/8	Fed 209A	Steel	36.5	Precision Reloading TU-PRW123 orange	1,371	10,615
1 1/2	Fed 209A	Steel	33.0	Precision Reloading TU-PRW123 orange	1,274	10,520

Hull #9
12 Gauge 3"
Hull I.D. Page 86
Reference Notes Page 106

Federal One-Piece Plastic Shell (With .090 Integral Basewad)

12
12 Gauge 3" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Steel	40.0	Precision Reloading TU-PRW123 orange	1,372	10,350
1 1/2	Fed 209A	Steel	34.0	Precision Reloading TU-PRW123 orange	1,294	10,965

Hull #11
12 Gauge 3"
Hull I.D. Page 87
Reference Notes Page 106

Remington SPELV Plastic Shell (With Yellow Plastic Basewad)

12
12 Gauge 3" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Steel	40.0	Precision Reloading TU-PRW123 orange	1,462	10,385
1 3/8	Fed 209A	Steel	37.5	Precision Reloading TU-PRW123 orange	1,385	10,965
1 1/2	Fed 209A	Steel	33.0	Precision Reloading TU-PRW123 orange	1,259	10,950

Hull #15
12 Gauge 3"
Hull I.D. Page 88
Reference Notes Page 107

Winchester Polyformed Plastic Shell #4, #2, #BB (With White Plastic Basewad)

12
12 Gauge 3" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/8	Fed 209A	Longshot	25.2	TPS 322-7702 + 1-20GA 1/2" FELT + 20GR #47 BUFFER + O.C.	1,275	10,300
1 1/8	Win 209	Longshot	26.6	TPS 322-7702 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	9,600
1 1/8	Fed 209A	Longshot	26.0	TPS 322-7702 + 1-20GA 1/2" FELT + 20GR #47 BUFFER + O.C.	1,300	10,800
1 1/8	Win 209	Longshot	27.4	TPS 322-7702 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,325	10,100
1 1/8	Win 209	Longshot	28.3	TPS 322-7702 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,350	10,700
1 1/4	Win 209	Longshot	23.7	TPS 322-7702 + 1-20GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,200	9,100
1 1/4	Fed 209A	Longshot	23.0	TPS 322-7702 + 1-20GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,200	10,300
1 1/4	Win 209	Longshot	25.3	TPS 322-7702 + 1-20GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,250	10,300

12

12 Gauge 2 3/4"
HeviShot Load Data

Cheddite Plastic Shell #9, #7 1/2, #6 (With Plastic Basewad)

Hull #16

12 Gauge 2 3/4"

Hull I.D. Page 89
Reference Notes Page 108

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Ched 209	Longshot	21.0	TPS 322-7701 + 1-20GA 3/8" FELT + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,175	9,700
1	Ched 209	Longshot	22.5	TPS 322-7701 + 1-20GA 3/8" FELT + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	7,800
1	Ched 209	Longshot	21.5	TPS 322-7701 + 1-20GA 3/8" FELT + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,200	10,200
1	Ched 209	Longshot	22.1	TPS 322-7701 + 1-20GA 3/8" + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,225	10,800
1	Ched 209	Longshot	23.6	TPS 322-7701 + 1-20GA 3/8" FELT + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,250	8,700
1	Ched 209	Longshot	24.6	TPS 322-7701 + 1-20GA 3/8" FELT + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	9,600
1	Ched 209	Longshot	26.0	TPS 322-7701 + 1-20GA 3/8" FELT + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,350	10,400

12

12 Gauge 2 3/4"
HeviShot Load Data

Federal Plastic Shell (With 7/16" Paper Basewad)

Hull #17

12 Gauge 2 3/4"

Hull I.D. Page 89
Reference Notes Page 108

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 3/8	Fed 209A	Steel	33.5	Precision Reloading TU-PRW12 white	1,320	10,680

Hull #18

12 Gauge 2 ¾"

Hull I.D. Page 90

Reference Notes Page 109

Federal One-Piece Plastic Shell #9, #7 1/2, #6 Target & Gold Medal Type

12

12 Gauge 2 ¾" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1	Win 209	Longshot	24.9	TPS 322-7701 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,275	9,500
1	Fed 209A	Longshot	24.1	TPS 322-7701 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,275	10,100
1	Win 209	Longshot	27.8	BP Cushioned LBC + 1-20GA 1/4" FELT	1,300	6,800
1	Fed 209A	Longshot	26.2	BP Cushioned LBC + 1-20GA 1/4" FELT	1,300	8,700
1	Win 209	Longshot	25.5	TPS 322-7701 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	9,900
1	Fed 209A	Longshot	24.9	TPS 322-7701 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,300	10,600
1	Win 209	Longshot	26.1	TPS 322-7701 + 1-20GA 3/8" FELT + 20GR #47 BUFFER + O.C.	1,325	10,200
1	Win 209	Longshot	28.8	BP Cushioned LBC + 1-20GA 1/4" FELT	1,350	7,500
1	Fed 209A	Longshot	27.6	BP Cushioned LBC + 1-20GA 1/4" FELT	1,350	9,300
1	Win 209	Longshot	29.7	BP Cushioned LBC + 1-20GA 1/4" FELT	1,400	8,100
1	Fed 209A	Longshot	29.0	BP Cushioned LBC + 1-20GA 1/4" FELT	1,400	9,900
1	Win 209	Longshot	30.7	BP Cushioned LBC + 1-20GA 1/4" FELT	1,450	8,700
1	Fed 209A	Longshot	30.3	BP Cushioned LBC + 1-20GA 1/4" FELT	1,450	10,500
1 1/8	Fed 209A	Longshot	21.6	TPS 322-7701 + 1-20GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,175	10,100
1 1/8	Win 209	Longshot	22.7	BP Cushioned LBC + 1-20GA 1/8" FELT	1,200	7,500
1 1/8	Fed 209A	Longshot	23.0	BP Cushioned LBC + 1-20GA 1/8" FELT	1,200	7,600
1 1/8	Fed 209A	Longshot	22.3	TPS 322-7701 + 1-20GA 1/4" FELT + 20GR #47 BUFFER + O.C.	1,200	10,600
1 1/8	Win 209	Longshot	24.4	BP Cushioned LBC + 1-20GA 1/8" FELT	1,250	8,200
1 1/8	Fed 209A	Longshot	24.3	BP Cushioned LBC + 1-20GA 1/8" FELT	1,250	8,400
1 1/8	Win 209	Longshot	26.1	BP Cushioned LBC + 1-20GA 1/8" FELT	1,300	8,900
1 1/8	Fed 209A	Longshot	25.7	BP Cushioned LBC + 1-20GA 1/8" FELT	1,300	9,200
1 1/8	Win 209	Longshot	27.7	BP Cushioned LBC + 1-20GA 1/8" FELT	1,350	9,600
1 1/8	Fed 209A	Longshot	27.0	BP Cushioned LBC + 1-20GA 1/8" FELT	1,350	10,000

Hull #25

12 Gauge 2 ¾"

Hull I.D. Page 93

Reference Notes Page 112

Remington SPELV Plastic Shell (With Yellow Plastic Basewad)

12

12 Gauge 2 ¾" HeviShot Load Data

Shot Wgt. (oz.)	Primer	Powder	Powder Charge (Grains)	Wad Column	Velocity (fps)	Pressure (psi)
1 1/4	Fed 209A	Steel	32.2	Precision Reloading TU-PRW12 white	1,367	10,930
1 3/8	Fed 209A	Steel	31.3	Precision Reloading TU-PRW12 white	1,291	10,450

CHAPTER 10

Care, Cleaning and Fun with your Shotgun

When all sporting arms fired black powder, the residue from the propellant attracted moisture and a rusting action commenced at once. The primer chemistry (salts) in those days were an even worse offender and they quickly generated a rusting process. Modern shells are no longer loaded with black powder and primers are now made with a non-corrosive firing mixture. This change has greatly reduced the potential for of corrosion.

Why Clean?

Almost all shotguns are built to last a lifetime... and beyond. With simple basic care, they can and do. But primer-powder residue, plastic fouling from the wad, fluctuating temperature and humidity, exposure to the elements during the game season, and sweaty hands all contribute to a gun's deterioration, if not cleaned properly. A gun damaged by neglect may not function properly and could create a safety hazard—but a well cared for firearm shoots better and safer, easily increasing in value over time.

The New Gun

To insure maximum performance and continued satisfaction with any firearm, periodic cleaning and lubrication/protection with high quality cleaning accessories is essential. That's why ATK/Onalaska Operations offers two brand levels of cleaning solutions: Outers and Gunslick. Outers has been offering shotgun solutions since 1935 and is known for such products as Tico Tools, Nitro Solvent and Gun Oil. Gunslick, introduced in 2004, offers some of the most advanced chemical solutions for copper dissolving, powder residue removal and gun protection to keep your shotgun in top condition.

Nu-Gun

Gun Cleaning Kits And Accessories

Almost all shotguns are built to last a lifetime.

A new shotgun as it comes over the counter will have the exterior surfaces lightly oiled and the bore will be coated with a preservative grease. Generally, the interior and chamber of the barrel must be cleaned, removing all grease and other possible obstructions. Gunslick's Nu-Gun offers an excellent solution for this. Nu-Gun easily blasts away factory greases and coatings. Simply spray Nu-Gun directly onto the greased areas, using the handy extension tube to spray into those hard to reach areas.

Outers Family of Products

Gunslick Family of Products

Remember to follow the firearm manufacturer's instructions for assembly and disassembly before performing any firearm maintenance, cleaning, or lubricating. In addition, always unload firearms before proceeding.

Gunslick offers the most advanced line of gun care products specially designed for the shooter who takes pride in his equipment. Gunslick Gun Cleaning Kits contain only the finest gun care components. They provide the sportsman on his way to the field, the convenience of a pre-assembled kit box with all of the necessary tools to be sure he can care for his gun while away from home. Gunslick Kits are available

in Ultra, Master, Match-Grade, and Field variations and contain many of the following products:

Cleaning Rod—High-strength coated steel rods with extra long sleeve-type joints for maximum durability. Match-grade shotgun kits offer steel coated double ball bearing handles for cleaning ease and smooth rotation. Also available are 1-piece Stainless Steel and Nylon-Coated rods with double ball-bearing handles. These one-piece rods will not break and the nylon coating has the added feature of protecting your barrel from scratches or damage.

Cleaning Rod

Cleaning Tip—Slotted and jagged tips attach to the end of rod and tightly hold cleaning patches. Jags offer extra surface structure to aid in barrel cleaning. For maximum strength, Gunslick offers brass slotted tips and jags that will not break or bend.

Cleaning Tips

Bore Brush—Bronze brushes are the best to use for removing primer, powder, plastic and lead fouling—and they will not damage the bore. Stainless steel bore brushes are also available for cleaning the more stubborn fouling. Spiral brushes can be used to remove any lead fouling or stubborn, caked-on fouling.

Wool Mops—Handy and absorbent mops attach to the cleaning rod. They can be saturated and used for cleaning by aiding in the distribution of solvent throughout the barrel before brushing, or they can be soaked with gun oil for final protective lubrication. Re-use over and over again.

Wool Mops & Bore Brushes

Cleaning Patches—Cotton patches cut to the correct size absorb solvent and have excellent "tooth" for cleaning action.

Cleaning Patches

Gunslick Gun Grease—The ideal graphite lubricant for movable parts. Creates hand-honed triggers and actions.

Gunslick Gun Grease

Gun Cleaners—Gunslick Ultra-Klenz is formulated to penetrate, completely removing 99% of the carbon fouling, dissolving copper, and removing traces of lead. Lab tests have repeatedly shown it performs with remarkable efficiency, yet it contains no harmful acid or ammonia. It's safe to use on even the finest steels. Frequent use keeps firearms operating at

maximum efficiency and helps eliminate fouling build-up and pitting.

Gunslick's Foaming Bore Cleaner is a foam cleaner that expands to fill all the cracks, crevices, and grooves allowing for complete bore coverage. "FBC" removes powder fouling, dissolves copper and loosens lead without harsh scrubbing. Just spray it in your barrel, wait less than 30 minutes, and remove. It's that easy.

Foaming Gun Cleaner

Ultra-Lube Gun Oil—To do its job gun oil must spread smoothly, coat evenly and stick to the gun's surfaces without gumming. *Gunslick Gun Oil* is specially formulated to fill this bill, with additives to increase lubricity. In addition, its synthetic formulation means that it naturally attracts to and bonds with metal, forming a lasting barrier to rust that's effective even in extreme temperatures.

rain, moisture, or high humidity can quickly cause corrosion damage

Ultra-Lube Gun Oil

Gun-Dri—While out in the field target shooting or hunting, rain, moisture, or high humidity can quickly cause corrosion damage to your firearm. To prevent field moisture from reaching metal surfaces, Gunslick offers *Gun-Dri*. *Gun-Dri* leaves behind a fine invisible layer of protectant that will not allow moisture to access the metal surface for up to 48 hours. Your gun will stay dry all day in the field without any risk of corrosion.

Gunslick Gun-Dri

Outers Aerosols

Outers introduced in 1984 a line of cleaners and protectants in convenient aerosol spray cans. Each formulation has definite advantages for gun cleaning and care:

Tri-Lube—In one simple step this Teflon® lubricant not only thoroughly cleans and lubricates, but also leaves a protective film against rust, saltwater and wear. It also has the capacity to penetrate and to loosen corroded or rusted parts.

Crud Cutter—Crud Cutter is a cleaner/degreaser that dissolves gummy build-ups of grease and oil, softens powder residue and washes out caked dirt. It improves movement of working parts and solves most gun failures caused by faulty operation of mechanisms like triggers, ejectors, extractors, etc. A handy extension tube allows access to hard-to-reach areas and no disassembly is required.

Nitro Solvent—Specifically designed to clean firearm bores and mechanisms, this strong solvent easily cuts through lead deposits, nitro powder residue and metal fouling.

Gun Oil—This is the excellent light oil lubricant that made Outers so popular. It maintains peak efficiency in a full range of temperatures, forms a light film to reduce friction and eliminate squeaks, yet will not gum up. It is excellent for protecting firearms from rust. A handy extension tube allows access to hard-to-reach areas.

Gun Cleaning Procedure

SAFETY WARNING—ALWAYS MAKE SURE YOUR FIREARM IS UNLOADED BEFORE CLEANING OR LUBRICATING

1. Follow the firearm manufacturers' instructions for firearm disassembly.
2. All guns should be cleaned as soon as possible after firing. Remember that moisture, temperature, humidity extremes and fingerprints all begin reacting immediately to a firearm.
3. Clean bore from breech end whenever possible. Use a bore guide to prevent cleaner and debris from entering action. If cleaning from muzzle end, use a muzzle guard to prevent possible damage to muzzle crown caused by the cleaning rod contact with crown.
4. Place a gun-cleaning mat on the floor or table. Attach correct size/caliber bore brush into end of the cleaning rod. Soak brush with gun cleaner. Hold the gun above the gun mat and push rod through barrel several times to loosen the bore fouling. Clean removable barrel(s) from the breech end.
5. Remove the bore brush and attach a slotted tip or jag. Attach the correct size-cleaning patch to the tip; saturate with gun cleaner and push the patch through bore. Use a clean patch for each pass through barrel. Repeat several times.
6. Check the bore with a bore checker or by holding a piece of white paper one inch from the breech to reflect light or look through barrel that has been removed from the action. If traces of fouling are visible, repeat steps 4 and 5. Continue with solvent soaked patches until one comes out clean. Then use a dry patch to remove excess solvent from bore.
7. Clean action, slide mechanism or bolt with solvent and patches and wipe dry.
8. After all parts have been thoroughly cleaned, attach a wool mop to the cleaning rod and run the wool mop saturated with gun oil through the barrel, making sure all surfaces are lightly covered. Apply gun oil to all working parts and all exterior metal surfaces. (Do not apply to hammer notches or trigger and do not apply too much oil.) Use Gunslick Gun Grease for slide actions of pump and auto-loading shotguns by briskly rubbing into metal and wiping off all surplus. Gunslick may also be used for internal mechanisms of all guns.
9. For long-term storage, apply a light layer of rust protectant such as Gunslick Gun Seal or Outers Metal Seal, to prevent rusting.
10. After gun is put away, it is a good idea to check it periodically, clean, and lubricate it if needed. Before firing your gun after cleaning, run enough patches through the bore and chamber to remove any grease or oil present.

SAFETY CAUTION—NEVER ATTEMPT TO SHOOT OBSTRUCTIONS FROM BORE OF ANY GUN. ALWAYS CLEAN FIRST. NEW GUNS SHOULD ALWAYS BE CLEANED BEFORE FIRING.

Things To Remember:

- Gunslick & Outers Gun Oils and Cleaners are made expressly for firearms. Never use ordinary household or motor oils.
- Do not over-oil. Too much oil can attract dirt and unburned powder or powder residue, making it gummy.
- Clean as soon as possible after firing your gun.
- Fingerprints can cause rapid rusting since there is acid content in perspiration. Whenever anyone handles your gun, a quick go-over with an oiled cloth will prevent any problems.
- Make sure your gun is unloaded before cleaning.
- All cleaning equipment must fit the gauge or caliber of your firearm.
- Check your gun periodically during storage.
- Follow the Commandments of Gun Safety:
- A good shooter is a safe shooter. He/She knows there is no place for horseplay in shooting or hunting. He/She learns and obeys the commandments of firearms safety and insists that his/her companions know and follow them, too.
- Every shooter, whether novice or experienced, should review these commandments before each hunting season to be sure that his/her gun handling, both at home and in the field, sets a good example for others.

COMMANDMENTS OF FIREARMS SAFETY

1. ALWAYS keep the gun pointed in a safe direction.
2. ALWAYS keep your finger off the trigger until ready to shoot.
3. ALWAYS keep the gun unloaded until ready to use.
4. Know your target and what is beyond.
5. Know how to use the gun safely.
6. Be sure the gun is safe to operate.
7. Use only the correct ammunition for your gun.
8. Wear eye and ear protection as appropriate.
9. Never use alcohol or over-the-counter, prescription or other drugs before or while shooting.
10. Store guns so they are not accessible to unauthorized persons.
11. Be aware that certain types of guns and many shooting activities require additional safety precautions.
12. Cleaning—Regular cleaning is important in order for your gun to operate correctly and safely. Taking proper care of it will also maintain its value and extend its life. Your gun should be cleaned every time that it is used.

Gun Care In The Field (And To And From)

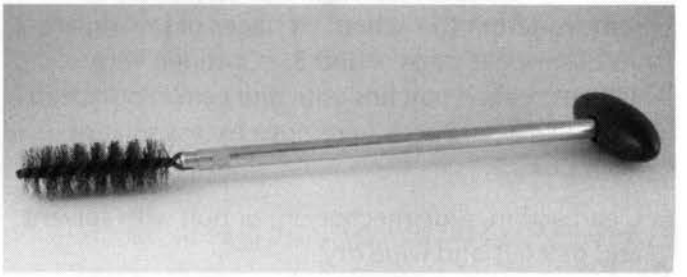
Any fine firearm is a considerable investment and deserves maximum protection. From home to the shooting range or in the field and back, Outers/Gunslick cleaning products are assets. Many knowledgeable shooters carry a *Silicone* and *Tri-Care Gun Cloth*. A few quick wipes removes fingerprints and helps protect the gun from rust and corrosion. Both the *Outers Silicone and Tri-Care Gun Cloth* are packed in handy Ziploc re-sealable pouches.

Outers Silicone Cloth & Tri-Care Gun Cloth

Any shooter that has spent a hot, humid day in the field, at a trap or skeet range, has had, or seen, jamming, misfires or ejection hang-up problems. Plastic hulls, a hot, humid day and a lot of shooting make for chamber fouling problems. The plastic seems to react with the heat and moisture along with powder residue etc., to form a gummy build up in the barrel chamber and forcing cone. Unless cleaned out periodically the problems mentioned above are inevitable. Pictured below are three hulls that had a rough trip coming out of the chamber. You will see that the extractor actually tore past the metal rim of the hull. A chamber brush along with some old-fashioned "elbow grease" will solve the dirty chamber problem.

Three Hulls With Torn Metal Rims

A solid rod and chamber brush is fine for break-open type shotguns like single and double barrels. The long rod and oversize brush provide maximum control and leverage for removing stubborn deposits. For autoloaders and pumps, the barrel will have to be removed to clean the chamber.



Chamber Cleaning Rod And Brush

Tico Tools—Outers one-piece *Tico Tools* are available in 12-, 16- and 20-gauge and are the perfect companion in the shop or out in the field. What's a *"Tico Tool"* you might ask? Only one of the best ways to keep the inside of your shotgun barrels clean—even while out on the range. The Outers *Tico Tool* is layer-wrapped so plastic, powder and carbon fouling are removed in one pass. The rigid internal rod provides plenty of strength. In the unlikely event the wrapping gets dirty, the Tico Tool can be cleaned with detergent and

water. Be sure to rinse well and air dry. A neat little bore swab is stored in the *Tico Tool* handle. After a few strokes with the *Tico Tool*, attach the pre-lubed swab and pull through the barrel when finished shooting to protect the surface of the barrel.

Outers Tico Tool

Your gun should be cleaned every time that it is used.

Outers Choke Tube Lube and Gun Grease provides a heavy-duty positive barrier against wear and corrosion. It is especially recommended for heavy shooting use to prevent stuck choke tubes. A small amount of grease should be applied only to the outside of the choke tube and threads. Proper lubrication is essential to make sure they perform as well as they possibly can. Shooters should make sure when the tube is inserted into the barrel and tightened that no lube has oozed into the bore. Peek through the barrel to inspect and run an *Outers Wool Mop* or *Tico Tool* through the barrel to remove any excess.

Outers Choke Tube Lube

Fun In The Field; Shooting Is A Skill—And It Is Fun!

Champion Traps & Targets

Not every shooter shoots sporting clays, trap and skeet competitively. There are thousands of shooters that shoot clay birds for fun. Whether you are a gun club manager or a recreational backyard shooter, choosing the right targets and traps for top performance is important.

If you're serious about providing the best shooting experience, and getting optimum performance from your traps, Champion Traps & Targets has the answer.

Nowhere in any regulations does it say you have to have an expensive regulation trap to get in loads of fun and skill-improving practice. For all your shooting practice Champion has a trap sure to meet your needs, from the entry level *Super Sport Hand Thrower,* 3/4 cock manual traps and portable electric traps to commercial range traps.

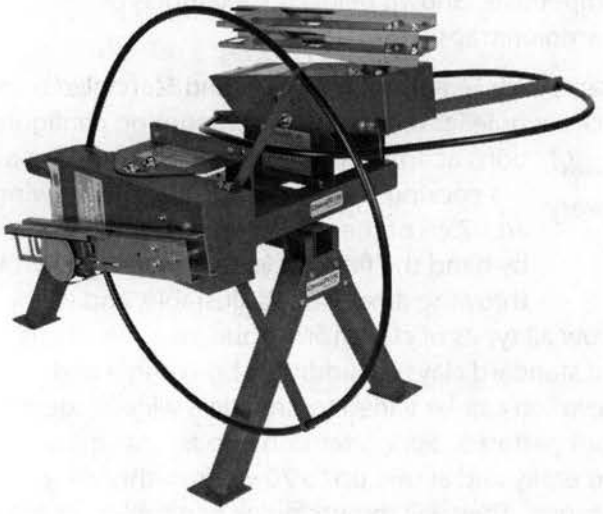
Champion Traps and Targets are all about helping claybird shooters have fun, get practice, and stay competitive. Shown below are examples of Champion traps.

Champion's *Flightmaster, Skybird* and *Matchbird* traps pack a whole lot of features and mounting configurations at an affordable price. They all offer a 3/4 cocking feature that resets the throwing arm 75% of the way so you only need to cock by hand the final 25%. Each traps powerful throwing arm is fully adjustable, and will throw all types of clays from rabbit, to minis, midis and standard clays. In addition, both angle and elevation can be varied to provide a wide range of flight patterns. Spring tension also adjusts quickly and easily and allows up to 70 yards of throwing distance. They will throw singles or doubles for as long as you can shoot 'em with remarkable uniformity, thanks to their heavy-duty construction.

Champion Recreational Manual traps

Whether you're a course operator or just serious about your shooting, the American Sporter 2 is your kind of trap. Its dynamically balanced design centers the trap's throwing energy directly to the arm delivering well over 100-yards-plus throws with no target tailing. Consistently simulates any flight pattern and throws a flock of clays: mini, midi, rabbit, and battue. Adjustment is easy and the trap can be mounted horizontally, vertically, or on a stand. It requires no electrical power so you can take it anywhere. Safety zone indicator ring marks path of throwing arm and the shielded pull trigger makes it as safe as it is simple to operate. The photo below shows two traps mounted

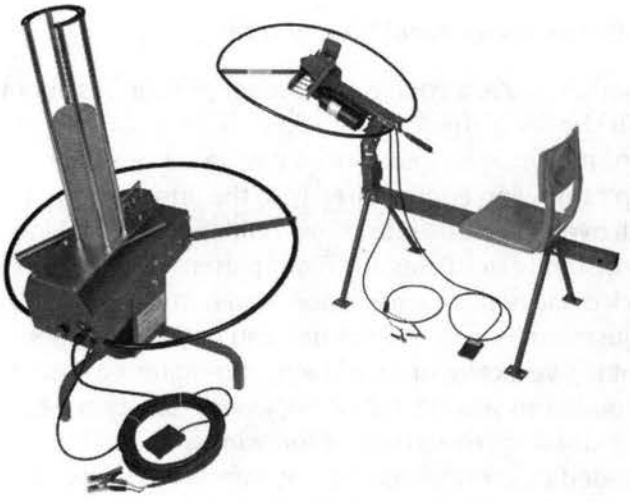
on a trap stand using a *Fur 'n Feather* adapter. Use the top trap for bird targets, the side mounted trap for rabbit
targets. All mounting hardware is included. (Author's Note: This is one fun portable trap—I personally have set this trap up on the goal line of a football field and thrown targets through the goal posts at the other end. That takes a throwing arm beginning with a gentle acceleration and ending with a powerful smooth



delivery—the *American Sporter 2* has those features!)

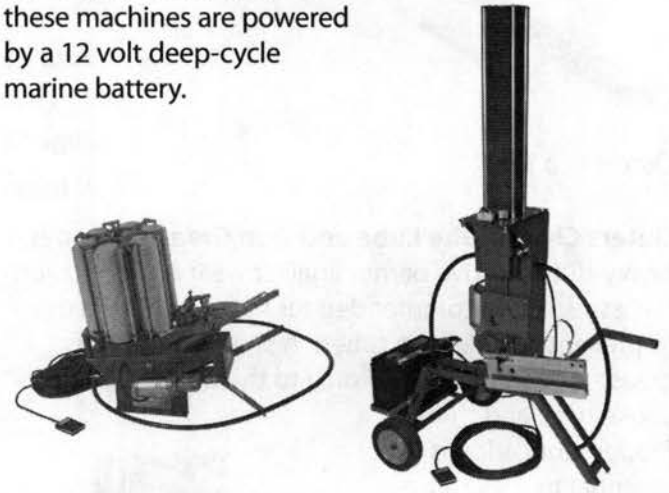
Champion's recreational *Easybird* electric traps offer two electric handset traps and an autofeed. No cocking is required on these traps, as you just place the clay on the arm and press the button. It's that easy. *Easybird* handsets will throw rabbits, minis, midis and standard clays as well as singles and doubles. With the same versatility as the 3/4 cock manual traps, you can easily adjust distance, elevation and angle.

Shooting solo is easy with the *Easybird Autofeed*. It holds 50 standard clays, automatically feeds, and releases each bird with the press of a foot pedal.



Champion recreational electric traps

Set up your own backyard all-electric field with Champion's Light Commercial machines. Use the *SST*, a single stack trap, which holds 50 clay targets, or the 180 target, high capacity, 180-Sporter. Both of these machines accept the Oscillating base and Wobble attachment accessories, which provide automatic horizontal and vertical movement, and can be mounted on the *Trap Taxi trailer*. Diversity in this line can be obtained with the *SST Rabbit trap*, which is a 50 target single-stack machine, throwing a rabbit target in three presentation options; rabbit, chondelle, and teal. The *SST Rabbit* has an integral trailer-trolley for towing or moving by hand. All of these machines are powered by a 12 volt deep-cycle marine battery.



Champion light commercial electric traps

Champion offers a complete line of clay targets for trap, skeet, and sporting clays. Four types of targets are available in the uniquely packaged *Sporting Clay Variety Pack*. This 107-count target case has an assortment of the Jackrabbit, 90mm Midi, 60mm Mini, and Sporting Clay Standard. The Jackrabbit can be thrown along the ground or straight up, in a teal presentation. The 60mm Minis are great for Dove presentation, as are the 90mm Midis for Quail. The Sporting Clay Standard can be used alone or, when thrown from a handset trap, nested with a 90mm Midi underneath. Both targets leave the arm as one, but separate in flight! It's a great for covey presentations.

Champion Clay Targets

The Undeniable Truth of Shotgun Chokes and Choke Tubes

The following information is extremely important to all handloaders. *"What Is A Shotgun Choke?"* is written by Trulock Chokes and cannot be stated any better. It is reprinted here with the permission of Mr. George Trulock, Trulock Chokes, whose cooperation in providing this material is greatly appreciated.

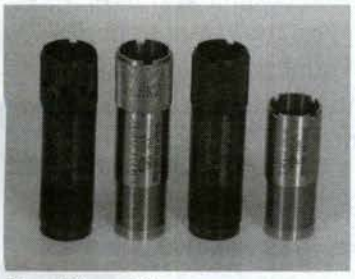
Author's Note: Patterning performance is directly related to successfully reloading shotshells; that's why this information is included. It simply doesn't matter if the reloaded shotshell is of the finest performance quality or not, if the shot pattern can't be delivered to the target successfully, shotshell reloads take the blame—"chokes" make the difference.

What Is A Shotgun Choke?

By: George and Jerrod Trulock

Remington choke tubes

A choke is simply a tapered constriction of the gun barrel's bore at the muzzle end. The exit end of the choke is smaller by some dimension than the actual bore of the barrel. This difference is the amount of constriction. For example if the bore of the barrel is .730 and the exit diameter of the choke is .710 you have a constriction of .020. The amount of constriction for a given degree of choke will also vary between manufacturers. As a general rule for standard chokes the total range will be between .000 and .045 thousandths of an inch under bore diameter. In the case of special purpose turkey chokes, it can be as much as .100 or 1/10th of an inch. The length of the choke can vary as well. Most, but not all chokes will have an overall length of between 1.5 and 4 inches. Note that many fixed choke barrels marked skeet will actually be .000 or cylinder.



Benelli and Beretta choke tubes

Patterning performance is directly related to successfully reloading

They can be grouped in three general types:

1. **Fixed chokes:** They are made as an integral part of the barrel and cannot be readily changed except by a gunsmith and any alteration is considered permanent.
2. **Interchangeable chokes:** These can be of the "screw on" style, which is externally attached, or the "screw in" which is recessed into the barrel. To change the degree of constriction you simply remove and replace with a choke of a different diameter.
3. **Adjustable chokes:** This style of choke is adjustable throughout the entire range by turning a sleeve, which collapses or allows a collet to expand thus changing the exit diameter. A popular choke of this type is the PolyChoke.

The internal design of chokes can also be broken down into three main groups:

1. **Conical Parallel:** They have a cone that blends into a parallel section that helps to stabilize the shot charge as it leaves the choke.
2. **Straight Conical:** This has a cone only. Where the cone stops is the point where the shot exits the choke.
3. **Wad Retarding:** They do not have the constriction in the same manner as either of the above designs but instead use bumps or projections to alter the shot pattern.

The most common design in use is the conical parallel. All Trulock Chokes are of this design.

Shotgun Patterns

Patterns are normally expressed as a percentage such as 50%, 60%, 70% etc. This is the commonly accepted method comparing pattern density. In a 50% pattern, 1/2 of all the pellets contained in the shell will strike inside of a circle of 30 inches in diameter. To find the percentage of any given load divide the number of hits inside the circle by the total number of pellets contained in the shell. You can obtain the approximate number of pellets any given load will have from a shotgun shell reloading book or you can open a couple of shells and actually count the pellets. All pattern testing is done at a distance of 40 yards with the exception of cylinder, skeet 1 chokes in all gauges, and all chokes for the .410 bore which are normally measured at 25 yards.

The purpose for this is to allow you to select a choke that will throw a pattern that is as large as possible without having the pellets so far apart that the target can escape multiple hits. For shooting both game and clay targets you want a pattern that is perfectly even

in pellet distribution over the 30-inch circle. Having said that, and after looking at thousands of patterns over a span of 25 years I could count on my fingers the number that I would call perfect and if these were measured close enough they would not have qualified. In this instance "very close" is good enough. Two exceptions to the preceding would be buckshot and turkey patterns. With both of these, you are looking for a tight center cluster of pellets.

One thing to remember—The only thing that is consistent about shotguns is that very few things are consistent. Identical guns with the same degree of choke and using the same shell may not pattern the same. The same load between various brands of shells can pattern differently. Patterns will change when changing from hard to soft shot. Patterns can change when anything in the shell changes such as different wads, powders or primers. What I am trying to get across is that when you change anything such as brands, shot size, or components you will need to check the pattern as it could have changed, sometimes by an extreme amount.

The same load between various brands of shells can pattern differently.

Once you find a choke/shell combination that gives you the pattern you want it should remain reasonably consistent as long as nothing is changed. I am satisfied as long as the percentage stays within a 5% plus or minus deviation.

The below chart shows the relationship between the degree of choke, the percentage and constriction based on lead shot. Keep in mind that the percentages are a guide only. What you actually want is a pattern that is dense enough to insure multiple hits on your target at the distance you normally shoot.

Lead Shot Choke Chart

	Constriction	Percent
Cylinder	**.000**	**40 at 40 yards**
		70 at 25 yards
SKT 1	**.005**	**45 at 40 yards**
		75 at 25 yards
Improved Cylinder	**.010**	**50 at 40 yards**
Skt 2 Light Modified	**.015**	**55 at 40 yards**
Modified	**.020**	**60 at 40 yards**
Improved Modified	**.025**	**65 at 40 yards**
Full	**.030**	**70 at 40 yards**
Extra Full	**.040**	**73 at 40 yards**
Turkey	**.045**	**75 at 40 yards**

Keep in mind that this chart should be used as a starting point only. Select the choke and pattern it. Change chokes or loads as needed to get the pattern you want. If you do not pattern your gun, please feel free to accept this chart as being infallible.

How to Pattern

I like to use paper that measures 4 feet square. Paper this size may be hard to find locally. If it is not available, try taping several sheets of butcher paper or newsprint together. Bruce Buck suggested using red resin flooring paper. (Author's Note: Bruce Buck—whose byline is, "Often in error—Never in doubt," is the "Technoid" of *Shotgun Report* <http://www.shotgunreport.com>. Resin flooring paper is available at any home supply store and shows the pellet holes perfectly when viewed from the back. The "Technoid" noted it is available only in 36-inch wide rolls but it cuts and tapes easily. If you use small paper and your gun does not shoot to the point of aim, part of your pattern could be off the target. You would probably confuse this with a bad pattern. If it helps you, mark the target center for use as an aiming point.

I prefer to use a shooting bench when patterning. At this point, you are not checking the gun for fit and a rest helps to remove some of the variables. From the correct distance, shoot at the center of the target. I would do this a minimum of five times on different targets with each shell or choke that is being tested. You will need to draw a 30-inch circle around the densest portion of the pattern on each target. If you intend to do much of this, get a 30-inch diameter piece of thin Lexan (Plexiglas). You can easily move this around on the paper to find where to draw the circle. Count the pellets inside of the circle. Divide this number by the total number of shot contained in the shell and you will have your percentage. Take the percentage from each target, add them and divide by the total number of shots fired for each shell or choke. This will give you the overall average for that test. Sounds like a royal pain doesn't it? It is, but there are no short cuts if you really want to know what your shotgun is doing.

After you have finished look carefully at each pattern for holes that are big enough to let your intended target slip through. You want a dense enough pattern to ensure multiple hits.

Point of Impact

We are asked on occasion about chokes that do not center the pattern exactly on the aiming point. Most shooters want a shotgun that centers the pattern exactly with the point of aim. Most shotguns are manufactured in theory to do this. The problem arises

between theory and fact. It is not unusual to find shotguns that shoot high or low and to the right or left or a combination of these. Shotguns that pattern 1/2 above and 1/2 below the point of aim have what is commonly known as a 50/50 pattern. One that shoots 3/4 of the pattern over and 1/4 under the point of aim has a 75/25 pattern and so on. Certain guns are designed to give patterns other than 50/50. WE WILL ASSUME that you know if your gun was designed to give a pattern other than 50/50.

Some of the common reasons for off center patterns are listed below.

1. Defective choke tube
2. Bent barrel
3. Choke/barrel alignment
4. Loose barrel
5. Poor gun fit
6. FLINCH—This could also result from a combination of any of the above.

To check your gun for point of aim we suggest the following

1. Shoot from a padded rest.
2. Make sure to get perfect bead alignment if your gun has a center bead, if it doesn't get the rib perfectly flat, with the bead visible.
3. Use the same load as you will use in the field or on the range.
4. Squeeze the trigger. This is easier said than done as most shotgun trigger assemblies give anything but a good pull.
5. Use targets with a center aiming point.

Shoot several targets, change chokes and repeat.

I would suggest you do this with several different chokes. If you are using aftermarket chokes, also test some of the factory tubes that came with the gun.

1. If all of the chokes shoot to the same spot or at least very close to the same, your problem is not with the chokes.
2. If your point of impact changes with each choke you test, your problem is not the chokes.
3. If one choke shoots to a different point of aim and the others do not. I would say that choke is defective and a call to the manufacturer would be in order.

One other thing you should be aware of is the "point of convergence" (POC). This problem will be found only on side-by-side or over/under shotguns. Both barrels should shoot to the same spot. Again, what works in theory seldom works in practice. Generally with Over/Unders, the top barrel will shoot high. When testing for proper POC you will find it somewhat easier if you use tight chokes. If the POC is close, be happy, many are not. If you cannot live with the error, I suggest you talk to the manufacturer.

Steel Shot/Waterfowl Chokes

Much has changed over the years with steel loadings. The quality and consistency of the shells has been greatly improved. However, the fact that steel shot exerts much more stress on choke tubes has not changed. The problem is that steel shot is much harder than lead. It will transmit much more energy to the choke when it strikes the conical portion and if the tube is not of sufficient strength, it will cause it to deform. This is known as "choke creep"

Over a period of time, choke creep can lock a choke in the barrel so that it is next to impossible to remove. All Trulock Chokes are rated for use with steel shot from cylinder bore through improved modified with the exception of the Tru-Choke S.D. which are not recommended for any shot other than lead. In addition, our Super Waterfowl Choke was designed especially for steel and all other environmentally friendly shot.

It is strongly suggested that you use our Extended Precision Hunter style choke for steel shot as they normally give a superior pattern over the flush style chokes.

- **Close Range:** Approximately out to 30 yards
  - Skt 1 = pattern percentage of about 55%
- **Medium range:** Approximately out to 35 yards
  - Skt 2 (Light Modified) = pattern percentage of 65%
- **Long Range:** 35 yards and further
  - Improved Modified = pattern percentage of 75%
- **Extreme Range:** Super Waterfowl series

Alternative Alloy Shot: These are recommendations for Trulock Chokes only. These suggestions should be used as a starting point and should not be taken as a substitute for patterning your shotgun.

- **Tungsten Iron:** Treat this shot the same as steel
- **Tungsten Polymer:** Treat this shot the same as lead
- **Tungsten Nickel (HeviShot):** Treat this shot the same as lead
- **Bismuth:** Treat this shot the same as lead (Safe to use in older guns)

Please remember that none of the above shot should be used in any gun not rated for steel shot except for Bismuth.

Turkey Chokes

We make a wide assortment of chokes that fall under this heading. No one choke works well in all guns with all loads but one thing has to be consistent, the shot shell. You will have to shoot premium factory loads or assemble your hand loads with the best components available in order to get good dense patterns at long range. While this basically holds true for all shotgunning it is especially so when hunting turkeys. You have a very small kill zone even when the bird is at close range and it is imperative that you know exactly what your shotgun and shell is capable of. In testing different shells we have found that as a rule, two combinations work very well, factory loaded Hevi-Shot and factory loaded shells with buffered high antimony plated shot. These two loads normally work better than anything else does, but patterning is needed to see which load your gun likes the best.

To get a dense pattern with a tight center you will need the Precision Hunter style choke. Our three most popular chokes have exit diameters of .670, .665 and .660. Although some shotguns like a .680 generally, one of the above ends up working better. We also make a.650 and .640 but these are better suited to card shooting and not live bird hunting as they like smaller shot #8 better. The smallest exit diameter does not always give the densest pattern. We find that the smaller the exit diameter the more erratic the patterns. Normally one particular load will pattern considerably better than the rest. Let me repeat that you will be wasting your time to shoot a cheaply made or promotional type shell. We have patterned Hevi-Shot and have really good results with their #6 shot in the .670 turkey. In fact, we had several patterns going 60% at 70 yards with #2 shot.

Ideally, chokes should be cleaned each time the gun is used.

Suggested turkey chokes and shot size

.670 #4 lead and #6 Hevi-Shot

.665 #5 lead

.660 #6 lead

Please note that a choke of a given exit diameter is usually going to give a different pattern when used in guns of different bore diameters.

Take a Beretta at .723 a Remington at .727 a Browning I.P. at .740 and using a .660 in all three guns normally gives three different patterns. Just because a .660 worked very well in your Remington don't assume it will work great in your Browning.

Chokes for Buckshot

As with Turkey chokes you will be trying to get a very dense, tight pattern but since you have such a small number of pellets you cannot afford to have as many fliers. However, the rule about using premium shells does not change. Hard, plated pellets with a buffer will normally shoot tighter patterns with fewer fliers than those loads made with soft lead and no buffer. I would suggest the Precision Hunter style choke (extended) with an exit diameter of .030. This is our normal full choke. Some gun/load combinations will work better with a constriction of .040. One of these two constrictions will normally give you very tight patterns. It is very easy to over choke with buckshot. *The only sure way to know which your gun likes the best is to test pattern and see.*

Do not use turkey chokes for buckshot because they have too much constriction and will decrease not increase the density of the pattern.

The constrictions suggested were based on the use of 00 size pellets.

Choke Cleaning

Ideally, chokes should be cleaned each time the gun is used. Plastic fouling and powder residue will build up in screw in chokes much faster than in fixed choke guns. Powder fouling will also work between the choke and the choke counter bore in the barrel. Remove the choke and clean with a toothbrush using some sort of solvent. We use and suggest Choke Shine as a cleaner. Simply, drop the choke into the solution for a short time and it will come out with the fouling dissolved. Clean the inside of the barrel with a cleaner/lubricant such as Clenzoil making sure the threads do not have any residue, lightly wipe the choke with oil and reassemble.

Remember that rust can occur in the barrel and freeze a choke in place even if the choke is made from stainless steel. Waterfowl hunters should pay particular attention to keeping the choke and barrel clean.

Choke Tightness

Although this seems like a no brainer, we believe that there is a proper way to install a choke tube. When changing a choke in the field or at the range, wipe the choke with a clean rag to keep any abrasive from being ground into the threaded area of the choke/barrel. Finger tighten and then use a wrench that properly fits the tube to finish tightening using a moderate amount of pressure. This will help keep the choke from loosening up when in use. When a choke

is not properly seated the possibility of the shot charge striking the edge of the choke greatly increases. If this happens, a bulged barrel and a ruined choke are almost guaranteed.

Most chokes will loosen and back out to some degree if they are left finger tight. A perfectly clean, dry choke installed in a clean, dry barrel and moderately tightened with a wrench should not work loose. Having said that, most shooters are better off to make sure that there is a light coating of oil on the choke before installing as this will help prevent rust in the barrel. All chokes should be checked on a regular basis for tightness.

⚠ Prior to doing anything with a choke be sure the gun is unloaded and the muzzle is pointed in a safe direction.

Frozen Chokes

We have pulled frozen chokes in our shop of almost every brand. Normally by the time, we get the barrel one or more people have attempted to remove the choke. Did you ever wonder where the saying "Fixed Guns Repaired" came from? This problem can be prevented 99% of the time by simply cleaning the choke/barrel on a regular basis. The number one problem is RUST in the threaded area of the choke/barrel. If you keep this from forming, amazingly you will not have any problems. The second problem is choke creep (expansion). This fortunately is much less of a problem than rust. This is caused normally by using large steel shot in tight chokes (full or tighter). Follow the manufacturers suggestions when using steel shot and the odds are very much in your favor that you will have no problems. If choke creep happens you will notice the choke becoming harder to remove and install and if you continue it will eventually lock itself in the barrel.

If you find yourself with a frozen choke, my first suggestion is to take it to a competent gunsmith. Make sure the smith has some experience in this line of work.

⚠ WARNING The instructions below are not intended to be all-inclusive. If you are not responsible for your own actions do not attempt to use any of the suggestions.

1. Unload the gun, remove the barrel from the action and soak the muzzle in a can of penetrating oil for several days.
2. Make sure the container has a sufficient amount of oil to completely cover the barrel as deep as the choke is recessed.
3. Use a proper fitting wrench and try to work the choke back and forth in small increments.
4. If this does not work, try letting it soak several more days.
5. Heat applied to the choke area can be of help.
6. Never get the barrel so hot that you cannot touch it with your hand for several seconds.
7. Do not use a hammer of any kind to try and "tap" it.
8. Soaking and low heat will get most frozen chokes out.
9. Be patient when doing this as we have seen quite a number of barrels ruined because of impatience.

Choke Storage

We suggest that you keep your chokes in a padded case especially designed for them. There are a number of quality cases on the market in the $10.00 to $15.00 range. The purpose is to keep them from hitting each other or any hard object that could cause burrs or deformation. Chokes are particularly susceptible to denting in the skirt area. We have seen this occur on numerous occasions when chokes stored in plain boxes were dropped. We also urge you to clean all of the chokes that have used when you clean your gun. Alloy steel chokes need a light coat of oil prior to storage and stainless steel keeps its rust resistant properties best when it is free from all contamination.

We have tried to give you a very basic course on chokes and their use. If we can be of any service to you please call us. We will be glad to help with any questions or problems you may have. This will be a constantly evolving paper. If you would like to see any subject discussed concerning chokes or related please let us know.

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CHAPTER 11

Reference

Powder Cost for a Box of 25 Reloads

Loads Per Pound	Grains Per Load	Cost of Powder Per Pound										
		10^{00}	11^{00}	12^{00}	13^{00}	14^{00}	15^{00}	16^{00}	17^{00}	18^{00}	19^{00}	20^{00}
700	10	0.36	0.39	0.43	0.46	0.50	0.54	0.57	0.61	0.64	0.68	0.71
583	12	0.43	0.47	0.51	0.56	0.60	0.64	0.69	0.73	0.77	0.81	0.86
500	14	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
438	16	0.57	0.63	0.69	0.74	0.80	0.86	4.00	0.97	1.03	1.09	1.14
389	18	0.64	0.71	0.77	0.84	0.90	0.96	1.03	1.09	1.16	1.22	1.29
350	20	0.71	0.79	0.86	0.93	1.00	1.07	1.14	1.21	1.29	1.36	1.43
318	22	0.79	0.86	0.94	1.02	1.10	1.18	1.26	1.34	1.41	1.49	1.57
292	24	0.86	0.94	1.03	1.11	1.20	1.29	1.37	1.46	1.54	1.63	1.71
269	26	0.93	1.02	1.11	1.21	1.30	1.39	1.49	1.58	1.67	1.76	1.86
250	28	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00
233	30	1.07	1.18	1.29	1.39	1.50	1.61	1.71	1.82	1.93	2.04	2.14
219	32	1.14	1.26	1.37	1.49	1.60	1.71	1.83	1.94	2.06	2.17	2.29
206	34	1.21	1.34	1.46	1.58	1.70	1.82	1.94	2.06	2.19	2.31	2.43
194	36	1.29	1.41	1.54	1.67	1.80	1.93	2.06	2.19	2.31	2.44	2.57
184	38	1.36	1.49	1.63	1.76	1.90	2.04	2.17	2.31	2.44	2.58	2.71
175	40	1.43	1.57	1.71	1.86	2.00	2.14	2.29	2.43	2.57	2.71	2.86
167	42	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	3.00
159	44	1.57	1.73	1.89	2.04	2.20	2.36	2.51	2.67	2.83	2.99	3.14
152	46	1.64	1.81	1.97	2.14	2.30	2.46	2.63	2.79	2.96	3.12	3.29
146	48	1.71	1.89	2.06	2.23	2.40	2.57	2.74	2.91	3.09	3.26	3.43
140	50	1.79	1.96	2.14	2.32	2.50	2.68	2.86	3.04	3.21	3.39	3.57
135	52	1.86	2.04	2.23	2.41	2.60	2.79	2.97	3.16	3.34	3.53	3.71
130	54	1.93	2.12	2.31	2.51	2.70	2.89	3.09	3.28	3.47	3.66	3.86
125	56	2.00	2.20	2.40	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.00
121	58	2.07	2.28	2.49	2.69	2.90	3.11	3.31	3.52	3.73	3.94	4.14
117	60	2.14	2.36	2.57	2.79	3.00	3.21	3.43	3.64	3.86	4.07	4.29

Primers & Wads Cost for a Box of 25 Reloads

Cost Per 1,000	16^{00}	17^{00}	18^{00}	19^{00}	20^{00}	21^{00}	22^{00}	23^{00}	24^{00}	25^{00}
Primers	.40	.43	.45	.48	.50	.53	.55	.58	.60	.63
Wads	.40	.43	.45	.48	.50	.53	.55	.58	.60	.63

Shot Cost for a Box of 25 Reloads

Loads Per 25 Lb. Bag	Oz. Per Load	Grains Per Load	Cost of 25 Pound Bag of Shot										
			20^{00}	22^{00}	24^{00}	26^{00}	28^{00}	30^{00}	32^{00}	34^{00}	36^{00}	38^{00}	40^{00}
800	1/2	218.8	.63	.69	.75	0.81	0.88	0.94	1.00	1.06	1.13	1.19	1.25
533	3/4	328.1	.94	1.03	1.13	1.22	1.31	1.41	1.50	1.59	1.69	1.78	1.88
457	7/8	382.8	1.09	1.20	1.31	1.42	1.53	1.64	1.75	1.86	1.97	2.08	2.19
400	1	437.5	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13	2.25	2.38	2.50
356	1 1/8	492.2	1.41	1.55	1.69	1.83	1.97	2.11	2.25	2.39	2.53	2.67	2.81
320	1 1/4	546.9	1.56	1.72	1.88	2.03	2.19	2.34	2.50	2.66	2.81	2.97	3.13
291	1 3/8	601.6	1.72	1.89	2.06	2.23	2.41	2.58	2.75	2.92	3.09	3.27	3.44
267	1 1/2	656.3	1.88	2.06	2.25	2.44	2.63	2.81	3.00	3.19	3.38	3.56	3.75
246	1 5/8	710.9	2.03	2.23	2.44	2.64	2.84	3.05	3.25	3.45	3.66	3.86	4.06
229	1 3/4	765.6	2.19	2.41	2.63	2.84	3.06	3.28	3.50	3.72	3.94	4.16	4.38
213	1 7/8	820.3	2.34	2.58	2.81	3.05	3.28	3.52	3.75	3.98	4.22	4.45	4.69
200	2	875.0	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00
188	2 1/8	929.7	2.66	2.92	3.19	3.45	3.72	3.98	4.25	4.52	4.78	5.05	5.31
178	2 1/4	984.4	2.81	3.09	3.38	3.66	3.94	4.22	4.50	4.78	5.06	5.34	5.63

Note to Handloaders:
Always keep in mind the following:
1 oz. = 437.5 grains
1 lb. = 7,000.0 grains

Guide to Shotshell Reloading Costs

This guide is designed to enable the handloader to figure the actual costs of reloading a box of 25 shotshells. In order to do this the following information is needed:

- Cost of powder per pound.
- Weight of powder (in grains) specified by the recipe.
- Cost of shot per 25-pound bag.
- Weight of shot (in ounces) specified by the recipe.
- Cost of primers and wads per thousand.

This information is cross-referenced in the preceding charts; costs can be added in the spaces provided following the charts. The charts also show the number of reloaded shells that a pound of powder and a 25-pound bag of shot will give. This information is handy when buying components.

Using our cost charts, we can figure the cost of a box of 25 reloads.

We'll use our model load: 3¼ dram, 1 oz, 1290 fps
Federal Gold Medal hull
1 oz. of shot
Federal 209A primer
22.0 gr. Alliant American Select powder
Federal 12SO wad
1,290 fps @ 8,500 psi

EXAMPLE: Based on the following component costs and using our model load recipe we can figure the cost per box of 25 shells. This is a popular duplication of a 3-1/4 dram equivalent field load that fires 1 ounce of shot at 1,290 fps.

Alliant American Select Powder = **$12.37 per pound**
Shot = **$35.00 per 25-pound bag**
Federal 12SO Wads = **$3.65 per bag of 250 X 4 = $14.60 per 1000 wads**
Federal 209A Primers = **$2.03 per box of 100 X 10 = $20.30 per 1000 primers**

Using our cost charts, we can figure the cost of a box of 25 reloads. The cost charts are highlighted for our unit costs per box. Our model recipe calls for 22 grains of powder. Our cost per pound of American Select powder is $12.37 per pound. We do not locate a column for $12.37 using the Powder Chart, but by interpolating, the cost of powder per box of 25 reloads is determined to be 97 cents.

The amount of shot in our example recipe is 1 ounce per load. Using the Shot Cost Chart, we locate where the $34.00 column and the $36.00 column intersects the 1-ounce line to learn that the cost per box of 25 is $2.19.

Primers are sold in boxes of 100 or cartons of 1,000. The primer cost in our example is $2.03 per box of 100. The cost per thousand, therefore, is $20.30. We do not locate a column for $20.30 using the primers & Wads Chart, but by interpolating, the cost of primers per box of 25 reloads is determined to be 51 cents.

Federal wads are sold in bags of 250. To figure the cost of wads per package of 250 we first must determine the cost of 1,000 wads. Multiply the cost per package of 250 X 4 to arrive at the cost per 1,000. At $3.65 per bag of 250, 1,000 wads will cost $14.60. Using the Primers & Wads Chart, we determine our wads' cost per box of 25 reloads to be 37 cents.

The unit costs are added below.

$0.97 Powder cost per box of 25 reloaded shells
2.19 Shot cost
0.51 Primers cost
0.37 Wads cost
$4.04/box of 25 reloaded shells

Economy of reloading shotshells is just one reason to discover reloading. Today's plastic hull is the most expensive part of the shell and, as such, is largely responsible for the high cost of factory-loaded ammunition. A fellow cannot afford to do too much shooting when he pays $7.99 for a box of 25 factory-loaded 3-1/4 dram equivalent, 1 ounce 12 gauge shells. Every time the trigger is pulled it costs the shooter about 32¢ and this takes the pleasure out of shooting. In effect, the non-reloader scraps the most expensive part of the shell--the hull. The reloader can take those 25-fired hulls and reload them for about $4.03, or 16¢ each, and reload the hulls several times before they are worn out. No wonder the handloader says, "SAVE YOUR HULLS!" Each hull is worth 16¢ to him. (All costs are based on average 2007 discount store prices.)

The following chart should be very helpful to handloaders that can access the information on the Internet. It's very easy to use—just fill in the blanks and click calculate. Presto, the values appear instantly. Our thanks to Trapshooters.com for approval to reprint this chart. Go to:
http://www.trapshooters.com/rlcalcadv.htm
to use the chart.

Enter your Powder Cost $ | For how many Pounds? | How many Grains in your Reload?
Enter your Primer Cost $ | For how many Primers?
Enter your Wad Cost $ | For how many Wads?
Enter your Shot Cost $ | For how many Pounds? | How many Ounces in your Reload? 1-1/8
Enter your Hull Cost $ | For how many Hulls | How many times will you use this Hull?
Enter the price of a box of Factory Shells in your Area $ | Enter the cost of your Reloader $

Component	Cost Per Load	Cost Per Box	Notes
Powder	$	$	loads at grains per pounds
Primers	$	$	
Wads	$	$	
Shot	$	$	loads at ounces per pounds
Hulls	$	$	Hull will be used times
Reload without Hull	$	$	
Reload with Hull	$	$	Calculate

Savings between per box of reloads and factory loads without hull. $
Savings between per box of reloads and factory loads with hull. $
It will take you boxes of reloads or reloads to pay for the reloader without hull.
It will take you boxes of reloads or reloads to pay for the reloader with hull.

Powder Type	
Primer Type	
Wad Type	
Shot Type	
Hull Type	

In the following spaces, a handloader can keep a listing of personal reloading data and figure the cost of reloading for each box of 25 shells.

Total Reloading Costs for a Box of 25 Shotshells

#____

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#____

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#____

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

** There may or may not be a cost for the hulls. Many handloaders pick up once-fired hulls in the field, making their hull cost the original shooter's expense. Many of the better quality hulls can be purchased from dealers or trap and skeet ranges, etc. Some of these hulls can be reloaded 10 times (some less, some more, depending on quality) so figure the cost per box to be approximately one-tenth the original purchase price.*

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

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_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Total Reloading Costs for a Box of 25 Shotshells

#

_____ Hulls
_____ Primers
_____ Powder
_____ Wads
_____ Shot
$ _____ Box of 25

Personal Reloading Data Recipes

#	HULL	PRIMER	POWDER -GRAINS	PLASTIC WAD	OUNCES OF SHOT	PRESSURE	VELOCITY	COST PER BOX	REMARKS

Personal Reloading Data Recipes

#	HULL	PRIMER	POWDER -GRAINS	PLASTIC WAD	OUNCES OF SHOT	PRESSURE	VELOCITY	COST PER BOX	REMARKS

THE TEN COMMANDMENTS OF SHOTSHELL RELOADING

1. Exercise care and common sense at all times and always wear eye protection. It is an unnecessary risk to reload without safety glasses.

2. Do not reload without an instruction manual for the machine you are using whether it be a *RCBS* or any other brand and not before you have completely read and understood the instruction manual. *(In almost all cases these instruction manuals are free.)* Do not take shortcuts. Use your reloading press according to its instruction manual.

3. Reload only when you can give it your undivided attention. Develop a reloading routine to avoid mistakes. Don't become distracted, avoid haste and reload at a leisurely pace.

4. Carefully examine each empty shotshell hull. Do not reload hulls that are defective or excessively worn.

5. Observe "good housekeeping" in your reloading area. Keep your equipment and components in a neat, clean and orderly fashion.

6. Observe and heed all warnings in the *"Introduction"* section to the reloading data .

7. Double check. Take a second look at your chosen recipe in the *"Data Section"* and be sure you are using the proper components in the proper amount. Do not substitute components and never exceed recommended loads. Check the "dropped" powder charge with a powder scale to be sure it conforms to the chosen recipe and "check-weigh" dropped charges frequently.

8. Keep only the powder and primers you are using handy. Keep no more than needed in an open container. When not actually using powder or primers, store them out of the way in their original factory containers. Do not repackage powder or primers. This will preserve identity and shelf life. Only use powder and primers of a known identity. Scrap those of uncertain or unknown identity.

9. Store powder and primers beyond the reach of children and away from heat and open flames in accordance with SAAMI recommendations. Do not store primers in bulk! Do not force primers! Take care in filling automatic primer feeds. Do not smoke when reloading. Keep a fire extinguisher within reach of your reloading bench.

10. Keep complete records of your reloads. Apply a descriptive label to each box of shells. Then, when you find a reload that performs well, you'll have the recipe at hand.

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Remove at Perforation & Display in Your Reloading Area.

The GRAND, Powder Charge Weight in Grains

GRAINS	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Accurate Solo 1000	387	399	411	420	432	438	447	459	474																					
Accurate Solo 1250	369	384	396	408	420	429	441	453	459	471	480	492	501	510	516	525	537	543	555	558										
Accurate No. 2 Improved				357	366	378	387	396	408	417																				
Accurate Nitro 100	375	387	399	411	423	435	447	456	465																					
IMR 700-X		402	414	429	441	453	465	471	486	498																				
IMR PB	366		390	402	414	426	435	447	456	465	474	486																		
IMR SR 7625	345			381	390	402	414	426	438	444	453	462	474	486																
IMR 800-X		372	390	402	414	423	429	438	447	459	468	480			507	525		534		549	558									
IMR SR 4756		366				408		426	435	447	459	471	480						525	534		549	558			580	588			
IMR 4227									366			390		408	414	420	426	435	441	447	453	462	468	474	480	486		498		
Alliant American Select			417	423	432	447	456	468	477	483																				
Alliant Red Dot & E3	405	423	438	453	468	480	489	498	510	519																				
Alliant Green Dot	390	405	420	435	447	456	468	480	492	501	513	522	534		549	558														
Alliant Unique	354	369	381	393	405	414	423	435	444	453	465	474	483	492	501		510													
Alliant Herco	369	381	393	405	414	426	438	450	462	471	477	489	498		513	522	531		549	558	564	573		588	594					
Alliant Blue Dot					366	372	381	390	396	408	414	423	435	441	447	459	468	474	483	489	495	501	510	516	522	531	534	543	549	555
Alliant 2400	291	300	312	324	330	339																								
Hodgdon Clays			429	441	456	468	483	495	507																					
Hodgdon International	375	390	402	414	423	435	447	459	471	483	495	507																		
Hodgdon Universal	342	354	366	378	390	402	411	420	429	438	447	456	468	480	489	501														
Hodgdon HS-6				300	309	318	327	336	345	357	360	366	375	381	387	393	402	408	414	423	429									
Hodgdon HS-7						318	330	339	348	357	363	369	378	384	390	396	405	411	417	423	429	438	444	450						
Hodgdon Titewad		384	396	408	420	432	441	453	462	474	486	492																		
Hodgdon Longshot	300	309	318	330	345	348	357	366	372	381	390	396	405	414	423	429	435	444	450	459	465	471	480	486	492	498				
Hodgdon Titegroup		324	330	342	351	360	369	378	387	396	405																			
Winchester 540				300	309	318	327	336	345		360	366		381			402	408	414	423	429	435	441	444	450	459	465	471		
Winchester 571						318									390	396				423	429	438	444	450	456	462	468	474	480	486
Winchester Super Target					414	429	438	450	459	471	480																			
Winchester Super Lite				345	354	363	372	381	390	402																				
Winchester Super Field			327	345	354								420	426	432	441	450	456	462											

How To Select Bushings for Half Grain Charges:

Powder bushings are identified by numbers that correspond to the size of their inside diameter. (For instance, the inside diameter of the #456 bushing is .456 inches.) Bushings for powder charges in half-grain increments can be calculated from this chart. Simply, "split the difference" between the two even-grain bushings, and select the bushing nearest the result. Example: To find the bushing for 18½ grains of Alliant Hercules Red Dot powder, note that bushing #468 gives a charge of 18 grains and that bushing #480 gives 19 grains. Split the difference between 468 and 480, and the result is 474. Thus, the correct bushing for 18½ grains of Red Dot is bushing #474.

All charges listed on this chart are an average of several loads weighed following the complete reloading cycle. Powders used in establishing these loads were from ballistic samples supplied by the manufacturer or sealed tins of recent manufacture. Charges may vary slightly due to operator's technique and/or powder variables. Always check actual charge weight against recommended charges and adjust bushing size as necessary.

Bushings listed, but not offered from RCBS, can be obtained from other manufacturers.

The GRAND, Powder Bushings

Part #	Bushing #	Part #	Bushing #	Part #	Bushing #	Part #	Bushing #
89111	354	89119	408	89127	438	89135	462
89112	360	89120	414	89128	441	89136	465
89113	366	89121	420	89129	444	89137	468
89114	372	89122	423	89130	447	89138	471
89115	381	89123	426	89131	450	89139	474
89116	390	89124	429	89132	453	89140	480
89117	396	89125	432	89133	456	89141	486
89118	402	89126	435	89134	459	89142	498

Interchangeable Charge Bushings: For use with THE GRAND shotshell reloader. Designed so shot and powder bushings cannot be accidentally reversed in the charge bar. The bushings make it easy to change from one load to another.

The GRAND, Lead Shot Bushings

For Target Loads
Calibrated to measure maximum legal loads for trap and skeet shooting

Part Number	Bushing
89188	7/8 oz. #9
89189	1 oz. #7-1/2
89190	1 oz. #8
89191	1-1/8 oz. #7-1/2
89192	1-1/8 oz. #8
89193	1-1/8 oz. #8-1/2
89194	1-1/8 oz. #9

For Field Loads #6's
Compensates for tighter packing of smaller shot size

Part Number	Bushing
89170	7/8 oz.
89171	1 oz.
89172	1-1/8 oz.
89173	1-1/4 oz.
89174	1-3/8 oz.
89175	1-1/2 oz.

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For customer service, please refer to the phone numbers listed above.

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